# A GEOGRAPHY OF RELIGION IN SCOTLAND

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# ABSTRACT

## A GEOGRAPHY OF RELIGION IN SCOTLAND

The concern is with explaining religious distributions in Scotland on the basis of selected socio-economic variables and a model is formed of the geography of the Church in Scotland in terms of the demand for its ministrations and the provision made for its users. A historical perspective traces the evolution of the regionality and diversity of Scottish religion, and this forms a basis for an understanding of present-day patterns. Particular use is made of the 1851 Census of Religious Worship and Education. The evidence of the twentieth century supports the concept of secularisation and refinements to the concept are suggested by geographical analysis. The post-World War Two period stands out in that many denominations have experienced a notable decline in membership during these years. In order to explain these changes and their areal expression a variety of independent variables are analysed and incorporated into the model. The data necessitate that two approaches be adopted: an aggregate time series analysis and a disaggregated spatial analysis, both of which employ regression methods. In these analyses the role of migration in causing not only the redistribution of demand but also of contributing to the fall in membership is identified. From

a survey of 21 congregations distributed along a selected transect through Scotland, church member behaviour is modelled in urban and rural areas and two types of urban congregation are distinguished. At each stage a review of institutional adjustment to supply is made and it shows that historically the Church was in a position to influence demand through its provision of supply. Latterly, supply has been constrained by trends in demand but Church policies and decision-making processes are seen to influence the development of the geography of the Church as much as changes in the geography of known demand.

# D E C L A R A T I O N

This thesis has been composed by the undersigned and is based on his own research.

C.A. PIGGOTT

September, 1978.

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The author would like to express his gratitude to all persons who contributed to the formulation and completion of this study, though any faults are the sole responsibility of the author. Limitations of space permit mentioning only a few names at this stage. However, the names of many others who gave less extensive but nevertheless valuable assistance are noted in Appendix A.

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# I N T R O D U C T I O N

# CHAPTER I

## I N T R O D U C T I O N

> ... - there being a geography of religions as well as lands, and every clime distinguished not only by their laws and limits, but circumscribed by their doctrines and rules of faith - ...
>
> T. Browne[1]

Scotland is a country which has a history intimately bound with that of its Churches, and the nationality of its people is closely identified with Presbyterianism as the major form of religious institution. There has been a gradual cosmopolitanisation of the population which has created a diversity of faiths, yet the Established Church - the Church of Scotland - has remained dominant unlike its English counterpart. The strength of the national Church is tied historically to its role in the legal system, education and politics though latterly social work is its most notable secular involvement. In addition, the General Assembly of the Church of Scotland is still largely regarded by most of the Scottish people and their media as the main body representing them outside of

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[1] T. Browne, Religio Medici, c. 1635, ed. J. Winny (Cambridge University Press: London, 1936), p.3.

Parliament and the Committee on Church and Nation reflects this role. Although the Church of Scotland is the largest religious grouping in Scotland, representing approximately two-thirds of the adult membership of religious denominations, the remaining one-third support distinctive bodies outside the national Church which have adopted a variety of distributions within the country. The most notable example is the Roman Catholic Church which maintains an ardent Scottish identity.

Religion is also significant in numerical terms as a human activity in Scotland. Highet (1960, p.60) estimated that, in 1959, the average Sunday morning attendance in all Scottish Churches encompassed about 26 per cent of the adult population. Actual church membership accounted for about 56 per cent of the adult population of Scotland in 1947 (Idem, 1950, p.76), and if the allegiance of the remainder of the population were to be questioned it would no doubt show that the majority would claim allegiance to the national Church. After the numerical peak of the mid-1950s, when church membership may have reached 60 per cent of the adult population (Highet, loc. cit., p.54), total membership and attendance statistics have very noticeably declined to much press and denominational concern. A few denominations have grown in size but, with the exception of the Catholic Church which has begun to decline in recent years, these are very small in size. The decline has been such that in 1971 church membership accounted for a reduced proportion of about 50 per cent of the adult population of Scotland, yet was still a significant quantity in terms of human activity.

In this period of accelerating change there is a special need to study an important social institution. Religion in Scotland has not been studied in a geographical context on any significant scale and the purpose of this thesis is to further develop and apply the methodology in order to increase our understanding of this cultural phenomenon.

## 1.1 THE DEFINITION OF RELIGION

Religion is a phenomenon which can have multiple definition. An interpretation of religion provided by the United Nations in 1970 for census purposes (Shyrock et al., 1973, p.278) gave two alternative definitions:

(a) religious or spiritual belief or preference, regardless of whether or not this belief is represented by an organised group, or

(b) affiliation with an organised group having specific religious or spiritual tenets.

It is the latter of these alternative definitions which forms the basis for this thesis. The reason for making this choice is that although private religious behaviour or attitudes, as in alternative (a), may be of importance in influencing individual behaviour the anthropologist, theologian, psychologist and possibly sociologist are far better equipped, both theoretically and methodologically, to measure and analyse such phenomena. By contrast, public religious behaviour, as measured by institutional attendance or membership, is accessible to and amenable to analysis by the geographer.

## 1.2 SCOPE OF THE STUDY

The choice of a particular definition of religion has been one factor in delimiting the scope of this study. Another major decision is to treat religion as a 'dependent variable' with respect to other aspects of social geography and not as an 'agent' in respect of non-religious attitudes and behaviour. Some geographers have seen the purpose of the geography of religion as being, for example, the study of:

> . . . the part played by the religious motive in man's transformation of the landscape
>
> (Isaac, 1965, p.14),

and similarly certain sociological studies have attempted to show:

> . . . remarkable correlations between religiosity (indicated by church membership) . . . and a number of variables like electoral behaviour, absenteeism in industry, recreation pattern . . .
>
> (Swanborn, 1968, p.23).

However, a basic contention of this thesis is that it is important to establish a thorough working knowledge of institutional religion, and the influences upon it, before embarking upon the study of possible casual effects of institutional, or perceived,religion upon other phenomena.

## 1.3 OBJECTIVES OF THE STUDY

There are two points of view from which institutional religion may be approached. One is the institutional structure, or the provision made for its users, and the other is the demand for

its ministrations. The primary objective of this thesis is, then, to develop a model of the geography of the Church in Scotland in terms of the provision made for its users and the demand for its ministrations. The model will take account of supply and demand separately as well as being aware of the interrelationships between the two. Much of the analysis will be devoted to describing and assessing the temporal and areal patterns. This enables the proposal and examination of hypotheses, the investigation of processes and should suggest further avenues of exploration.

Since we have already noted that decline in church membership has occurred in recent decades and, as Chapter IV will show, has taken place over the longer term as a 'real' decline in demand, it might be appropriate to examine the concept of secularisation in the process of analysing the evolution and the nature of the pattern of demand for the services of the Church. The concept of secularisation has been developed by several sociologists and as such is capable of multiple definition (Glasner, 1971, p.19). Consequently, there is not universal agreement about its meaning or measurement. However, the most common application of the concept is to describe institutional decline and possibly the best operational definition is that given by Wilson:

> . . . the process whereby religious thinking, practice and institutions lose social significance.
>
> (Wilson, 1966, p.xiv).

Similarly, a possible index of secularisation, as representing the decline of religious influence and organisation, are membership and/or attendance statistics (Ibid., p.2).

There are, though, many qualifications that attach to the use of the concept. It has to be realised that the process does not necessarily mean that religious feelings are destroyed as private religion may continue and the process cannot be taken as irreversible, it is only that institutional practice ceases. Martin (1969, p.16) points to many weaknesses of the concept and argues that if secularisation is not a unitary process then one cannot talk in a unitary way about its causes. He believes that it has become too simplistic a term such that:

> . . . its very use encourages us to avoid studies of the impact of, for example, geographical and social mobility on religious practice, in favour of cloudy generalisations (Ibid., p.22).

Clearly, there is scope for improvement in the concept but it must be retained because it is, as yet, the best developed conceptual basis for understanding decline in religious institutions. It is possible that a geographical contribution to improvement of the concept might be made in this study. Martin has already implied this and Krausz (1971-2, p.204) has noted that secular trends are assumed to have been established in the post-Industrial Revolution era in Britain and that industrialisation, urbanisation and mobility are regarded as the chief factors causing religious attrition. Therefore, in developing a geography of religion this thesis will pursue a related objective; namely, to ascertain to what extent the concept of secularisation may be applicable to the Scottish situation and whether refinements of the concept might be offered on the basis of a geographical perspective.

## 1.4 ORGANISATION OF THE STUDY

This thesis can be divided broadly into four parts. The first part comprises a review of the literature in Chapter II and an assessment of religious data in Chapter III. The bibliographic review is selective but traces the development of the geography of religion to the present-day. Special emphasis is placed upon those authors who have highlighted needs for future study and the contribution of sociologists is assessed. This review provides a rationale which forms the basis of the organisation of this thesis. A primary constraint upon the geographical study of religion is that of the availability of religious data. A review of data in Chapter III identifies sources that are of value for historical and contemporary study and points to the opportunity for improving supply by undertaking a survey.

In the second part of the thesis, Chapter IV, the historical geography of religion in Scotland is examined on the basis of two fundamental contentions. The first is that an examination of the past can help to account for the regionality present in contemporary religious distributions. The second contention is that an examination of the past can explain the dominance of Presbyterianism within the diversity of Scottish religion and can also account for the particular relationship between, and the relative sizes of, different denominations.[1] In addition, a chronological framework enables an appreciation of temporal changes in membership and attendance over the long-term and from this explanations may be offered and periods of particular interest identified.

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[1] In this study the words Church and denomination are used interchangeably except when Church is part of a proper name.

The post-World War Two years are identified as being of particular significance and so this period is the subject of the third part of the thesis. The nature of the data means that analyses of demand in this period must be conducted in two ways: as an annual time series and as a spatial series with an aggregate time interval. The time series are examined in Chapter V and three hypotheses are formulated to account for the variety of change in church membership. In Chapter VI the relationship between church membership change and population change is examined and hypotheses are developed to account for the observed patterns. Chapters V and VI enable not only a re-examination of the concept of secularisation but also provide a basis for the examination of supply. Following consideration of the possible linkages between supply and demand, attention is devoted to an examination of supply in the light of known changes in demand and explanations of institutional actions are sought from policy and decision-making processes.

Until the fourth and last part of the thesis all analyses are carried out at the macro-scale. However, Chapters VIII and IX redress the balance by examining behaviour in the congregation which is the lowest unit of organisation in the Church. Chapter VIII deals specifically with the design and implementation of a survey. The data from the survey are analysed in Chapter IX on the basis of three hypotheses within the framework of a typology suggested by mapping the entire membership of each of the congregations included in the survey.

# CHAPTER II

## A REVIEW OF THE APPROACHES TO THE GEOGRAPHY OF RELIGION

# CHAPTER II

# A REVIEW OF THE APPROACHES TO THE GEOGRAPHY OF RELIGION

At a time when geography is rapidly expanding its field of inquiry into topics formerly studied by the adherents of other disciplines it is of particular interest to study the geography of religion which so obviously overlaps with several other disciplines. Before beginning a study of the geography of religion it is prudent to review previous contributions to this field of study. The purpose of this chapter is to review precedent in order to clarify the objectives and the nature of the geographical study of religion and so to establish a context for the present study.

## 2.1 THE RELATIONSHIP BETWEEN RELIGION AND GEOGRAPHY

Compartmentalisation like models can provide relative simplification and ordering of reality and so ensure a clear basis for understanding. Isaac (1965) has gone some way towards achieving this simplification in a classification which although only one of many is possibly the clearest. Use of Isaac's classification of the geographical study of religion overcomes the confusion which

has resulted from different workers at different times using the same terminology in dissimilar ways. Isaac considered that the approach to the geography of religion which characterises later work concerned with religion cannot be understood simply as an outgrowth of earlier trends in the examination of the relationship. However, such earlier trends can place later work in perspective and for this purpose we can refer to Isaac's classification in which the geography of religion was preceded by religious geography, biblical geography and ecclesiastical geography.

(1) Religious Geography

In this branch of study religion is the basic element and the land is thought or made to conform. One of the major azioms of ancient oriental and classical religions was that a correspondence existed between the events and structure of the heavens and those of the world of man (Ibid., p.5). Even today, religious geography has a continuing relevance, for example in the study of certain town plans and field systems, though in a much diminished form since the geographer was freed from the confining influences of his religious world view after the Middle Ages.

(2) Biblical Geography

This is a less significant form of the geographical study of religion. Isaac considered biblical geography to be an early form of historical geography. It was especially favoured in the sixteenth to the eighteenth centuries but this subject has, however, since become primarily the concern of the archaeologist.

(3) Ecclesiastical Geography

The third form of the relationship construed between geography and religion maps the spatial advance of the Church. Early maps of the Middle Ages carried such data and were enlarged upon by an increasing output of maps in the sixteenth, seventeenth and eighteenth centuries. During the nineteenth and twentieth centuries emphasis has been placed on the missionary atlas, for example the Statistical Atlas of Christian Missions (1910) or the more recent Atlas Zur Kirchengeschichte (1970). Much interest has also developed in ecclesiastical place name geography in the twentieth century, its main proponent being Sylvester (1967).

## 2.2 THE GEOGRAPHY OF RELIGION

The more recent development within the western tradition in the interpretation of religion has been the geography of religion. Isaac (1965, pp.11-14) discusses three approaches. Two of these represent a determinist philosophy and can be termed collectively the landschaft approach. One approach proposes that the geographic environment has conditioned the nature of religion while the other proposes the reverse. However, the third approach represents a subsequent trend in the geography of religion away from determinism towards methodological and systematic investigations of religion in its own right.

(1) The Influence of the Environment upon Religion

The conviction that religious forms were directly conditioned by the physical and human environments characterised the

early approach to the geography of religion. Its chief proponents were Huntington (1915 and 1921) and Semple (1911). Huntington considered that geographical conditions often have a direct effect upon the nature of religion and other phases of civilisation. In his own words:

> Every religion is at least modified by its surroundings, especially those of its birthplace.
>
> (1921, p.11).

The extent of his conviction is best illustrated by his infamous theory of climatic energy. He drew a simple correlation between the quality of Christianity and the areal extent of his regions of climatic energy. For example, Protestant Christianity, he claimed, had a greater chance of prevailing in regions which have a high or very high climatic energy with the exception of Iceland (1915, p.206).

Such influence is not restricted to the quality and distribution of religions alone since geographical factors also frequently determine the objects of worship, for example whether they be rain or sun gods. Semple (1911) also traced the effect of the environment upon the basic content of religions. She believed that a process of enrichment takes place as religion is transmitted through different physical and human environments and that as a result of this cosmopolitanisation Christianity achieved success. In addition, Semple gave extended consideration to the direct influences of physical features. In her opinion the barrier effects of mountains or rivers affected the nature of religious distributions and where such features reduce accessibility she believed that there would be two possible outcomes. The first of these is isolation

which encourages a highly religious nature and causes areas of orthodox practice to arise. The second is protection so that, for example, while the continent of Europe was suffering from the disruption caused by the barbarian invasion Irish Christianity was flourishing and this enabled its subsequent dissemination to the Picts of Scotland and the Angles of northern England. The protection of Irish Chrisitianity was achieved by establishing:

> . . . their mission stations again on islands, on Iona off south-western Scotland and on Lindisfarne or Holy Isle near the east coast of Northumbria.
>
> (Ibid., p.436).

A Welsh writer, Daniel (1928), continues the theme set by the earlier workers. In attempting to explain the geographical distribution of religious denominations in Wales he looked within a historical framework to the two environments of the land and the social and racial characteristics of the people. Daniel stated that while he was fully aware of the personal influence exerted by great religious leaders throughout the ages it was his chief concern to demonstrate:

> . . . how environmental influences have in one place presented opportunities, in another, difficulties to the success of individual efforts.
>
> (Ibid., p.3).

Once again special emphasis was laid upon the influence of environment.

The Indian geographer, Kuriyan (1961), echoed the theme of environmental influence established by Huntington and Semple in

respect of the content of religions. Kuriyan explored a possible geographical explanation for the nature of certain Christian legends and beliefs contained in the Bible in terms of their contemporary environmental context. Similarly, Fleure (1951) was convinced of the influence of the environment in the historical geography of religions. He sought to account for the development of the major religions in China, India, Persia, Palestine, Egypt and the Aegean on the basis of environmentally conditioned elements in the religions arising in these areas, and showed great interest in their spread and interaction.

Despite these contributions, this approach to the geography of religion has moved into general disfavour largely as a result of the more exaggerated claims of such work. It has become clear that geography has been inappropriately invoked in some cases to provide determinist generalisations. However, some credibility does attach to understanding the earlier stages in the evolution of a religion through this approach which has, therefore, some relevance to a consideration of historical geography.

(2) The Impact of Religion upon the Environment

The spectrum of authors who view religion as an agent acting upon the environment is more diverse than those adopting the reverse approach. There are many regional examples of the investigation of the effect of religion upon the landscape of which the Germans have been the most prolific source, for example Hahn (1958) who dealt with districts of Germany and Sievers (1958) who

examined south-west Ceylon. As the aim of this review is to consider the fundamental questions that have been raised in the geography of religion it is necessary to examine only a representative portion of these works.

Fickeler (1962) favoured the geographical study of the effect of a religious form upon a people, landscape and country but warned, however, of a twofold danger in such study. The first danger is of providing, as often happens, a simple factual description which seldom gives an indication or explanation of geographical effects. The second danger is of going to the opposite extreme by relying too heavily upon geographic causality and so neglecting to include non-geographic conditions and causes. Unfortunately, he appeared to ignore his own advice when, in the same study, he catalogued an extensive list of the effects of religion upon the environment in Asia without providing an accompanying geographical assessment.

In a similar fashion, an earlier French writer, Deffontaines (1948), marred the largest single work on the geography of religion by producing an inventory of landscape phenomena which have been influenced by man's religious motivations from various parts of the world, but without contributing to the methodology of geographical interpretation. By no means, though, has this mistake always been made. Isaac, for example, considered that the comprehensive studies of religion which had so far been undertaken were little more than simple classifications of the types of effects that religion had exercised in the landscape. In his opinion, the most crucial

problem was to identify wherein lies the transforming power of religion upon the landscape and to explain the disparate nature of the extent of its effects. He also made an important point, relatively neglected by other writers, that the effect of religion upon the environment is essentially relevant to a historical study since, with the exception of primitive cultures, the impact of religion upon the landscape in modern secular culture is relatively minimal (1959-60, pp.16-7).

It appears that the study of the two-way causal relationship between environment and religion is not of direct relevance in a present-day context. However, determinism may be indirectly relevant in that it may be appropriate to an historical geography of religion which can help to account for the nature of the contemporary situation. An example of the constructive use of deterministic explanations is a regional treatment of the geographical factors and consequences involved in the nature and spread of the Islamic religion (Planhol, 1957). The overall result is that there has been a trend away from studies which pre-suppose a deterministic relationship between religion and the environment towards those which favour instead the systematic analysis of religion within a non-deterministic framework.

(3) Non-Deterministic Studies of the Geography of Religion

Zelinsky (1961) and Gay (1971) have both emphasised the lack of reference to the geography of religion in standard geographical reference books, either dictionaries or major works. Only a few geographers have commented upon the study of religious phenomena in

social geography, including Broek (1959) in North America, Pahl (1965), Watson (1951) and Jones (1975) in the United Kingdom. Similarly, in the field of political geography, Fischer (1956) has advocated that religion can be seen to be an important independent variable but this is a sentiment that has not been pursued by his colleagues.

Despite the lack of general recognition there have been numerous works concerned specifically with the non-deterministic study of religion. These occur in several languages and can be seen to vary according to three principal factors:

(a) the availability of data

(b) the diversification of religious composition in the study area

(c) the scale of the study area.

The availability of data is probably the most important limiting agent since studies vary in quality according to the respective quantity and quality of statistics that are available. Moreover, geographers seem to concur in the opinion that the analysis of religion is best achieved through the statistics of formal religious adherence largely because of the scarcity and problems in interpretation of other forms of religious data. Religious diversification is also of great significance. In the case of virtually mono-denominational nations such as the Catholic countries of Europe studies tend to concentrate less upon the distribution of religious groups and dwell upon 'vitality' or the quality of distribution. By contrast, multi-denominational countries such as the United States and the United

Kingdom offer more scope for a variety of geographical analyses. The scale factor is of significance in that studies in the geography of religion vary from attempts to adopt a world view to localised urban area studies. Although the scale of analysis largely determines the depth of the study there is little consistency between studies of the same scale because of the variations in factor (a).

An example of a world-wide survey of religions is that of Sopher (1967) which draws largely upon the findings of a selection of previous workers. He adopted a framework for analysis of the geography of religion which pursued four cultural themes:

(a) The significance of the environmental setting for the evolution of religion.

(b) The way religious systems and institutions modify their environment.

(c) The different ways whereby religious systems occupy and organise segments of earth space.

(d) The geographic distribution of religions and the way religious systems spread and interact.

Two of the themes, (a) and (b), are akin to those which have been reviewed in the two previous sections. In producing his own analysis, Sopher attempted to improve upon the work of his predecessors by means of a more cautious consideration of geographical relationships. The ultimate and penultimate themes, (c) and (d), constitute the focus of most recent work in the geography of religion to which Sopher has contributed his own broad analyses. An important conceptual contribution is made to the study of the geography of religion in his assessment of the spatial and ecological characteristics of religious

systems which he classified as follows:

(a) Distribution, that is both geographical pattern and social extent.

(b) Structure in space, that is the machinery whereby a religious system organises all of its adherents.

(c) The means used by a system to grow numerically and territorially.

The macro-scale at which Sopher's study has been executed is, however, both a strength and a weakness. Its strength lies in the integrative and comparative world view while its weakness results from the lack of more detailed analysis.

A necessary complement to this and other similar studies is provided by micro-scale analyses. In working at a smaller scale not only have the data requirements been more rigorous but it has also been necessary to develop a more extensive methodology. One such major contribution to methodology has been made by Hotchkiss (1950) whose aim was to demonstrate that geography as a research discipline could provide a useful input to the planning of organised religion. By investigating the patterns and functions of religious institutions in the Cincinnati Metropolitan Area Hotchkiss sought to understand the relationship of these institutions to the 'dynamic organisation of this urban unit' (Ibid., p.1). His examination proceeded by first reviewing the historical background - immigration, urban development and racial and ethnic factors - which he used to explain the particular religious fabric of the area. Secondly, he examined the location factors which determine the geography of the

individual denomination. Two basic principles were established, one of which was the location of the population to be served, and the other was the theory of parish structure. By selecting one community area - Northeast Hills - which he proved to be representative of the city as a whole, Hotchkiss undertook a detailed analysis of spatial organisation. The results of this investigation not only corroborated the system of areal variation that he had earlier deduced from the aggregate pattern of church locations, but also confirmed his theory that religion was interrelated with other phenomena in space. The nature of this correlation varied between denominations and comprised such entities as shopping facilities, schools and transport nodes.

This work was roughly contemporary with that of Douglass (1947), another researcher of the Cincinnati area. His particular contribution was a thorough examination of parish structure on the basis of returns by churches from which a statistical analysis of the distribution of church members was possible. Douglass formulated the generalisation that dispersed parishes characterised smaller denominations and downtown churches of larger donominations, while compact parishes were characteristic of the remainder of the churches of the larger denominations. Although these findings differ from Hotchkiss's conclusion, based on the Northeast Hills community, that churches serve a 'natural area' regardless of denominational labels, the importance of both of these studies is their contribution to a methodological foundation for the geography of religion.

Another writer in the United States, Zelinsky (1961), represents the middle-ground between Sopher and the analysts of Cincinnati. Zelinsky's interest laid in a better understanding of such cultural regions as might exist in the United States. He believed that a necessary approach to the achievement of this understanding was to map the areal patterns of religion. These patterns were interpreted in terms of migration theory, urban-rural differences and general facts of the human geography of the United States, and reinforced by a statistical analysis of religious distribution. Following this, Zelinsky attempted to establish the interaction of religion with other human activities and cultural traits. However, he felt that geographers lacked the information or research techniques to state the precise nature of such inter-relationships. There was insufficient knowledge of the way religion operates to thoroughly test his hypothesis that religion is a significant element in population geography and consequently Zelinsky did not consider himself to be in a position to establish conclusively whether there were religious regions in the United States. He did not, however, conclude on a pessimistic note but instead suggested five avenues for future research (Ibid. p.167) which might help to improve the situation that he had identified:

(a) Intensive local studies.

(b) Detailed study of the historical geography of individual denominations.

(c) The statistical analysis of areal association on a national or regional scale involving such religious statistics as we already have and relevant demographic, economic and social data.

(d) The careful search for relevant material in both the methodological and substantive writings of scholars in other fields touching on religion.

(e) Comparative studies involving the United States, or substantial parts thereof, and other parts of the world.

In these ways, Zelinsky has both crystallised the problems facing the geographical study of religion and, at the same time, suggested several possible courses for remedial action. Certainly contemporary and later writers appear to have recognised, in their own national contexts and to varying degrees, the needs which Zelinsky had identified.

In the same decade and in the same country, a significant contribution was made by Johnson (1966) to the geographical study of religion. He acknowledged the importance of Zelinsky's initiative and criticised the lack of statistical analysis and model development, in general, in the geographer's approach to the study of religion. His study was devoted to the:

> . . . development of a model capable of predicting the areal spread of a religious group
>
> (Ibid., p.29),

with emphasis laid upon the rigorous testing and reformulation of his diffusion model.

However, Johnson was in the enviable position of possessing a study population comprising a religious group with a unique centre and a known diffusion in recent history. Moreover, this diffusion has occurred largely within one country and is still continuing. Although this religious population is not generally typical, Johnson's work is probably most important for the encouragement that it gives to the development of a body of theory for geographical studies of religion.

Elsewhere, possibly some of the best equipped to pursue the geographical study of religion are those researchers working in the Irish context since, in Northern Ireland and in Eire, the official census has included a question about religion and so provides a comprehensive data-base. A substantial contribution has been made by Jones whose study of the social geography of Belfast (1960) includes a chapter that deals with the geography of religion in this city. The denominational distribution patterns were mapped on the basis of 1951 census data and an 'index of segregation' was derived (Ibid., p.200) to illustrate the areal impact of the factor of strife between members of the Protestant and Catholic denominations. Consideration was given to the role of population movements and their origins as well as to historical location factors but, while orientation and population movements might account for the major sectors of different religious denominations, the more detailed pattern of distribution was, in his opinion, more closely related to the different socio-economic and physical environments in which people live. The environments were mapped in terms of 'regions' which summarised the two factors of population density and socio-economic status and an analysis of religious distribution and segregation then suggested certain correlations with these factors. Jones noted, however, that these spatial relations did not by any means completely explain the patterns since it was also necessary to consider the historical and environmental characteristics of the various areas in which were laid some of the more complex factors governing religious distribution.

Recently, Poole and Boal (1973) adopted the idea for the measurement of segregation in Belfast and extended it into a multi-level analysis at the differing scales of the street, the tract and a set of sectors and rings. On the basis of information collected by themselves the authors were more concerned than Jones with describing the actual pattern formed by the distribution of mixed and segregated areas. Finally, the degree of segregation and the spatial distribution of Catholics were compared with the corresponding findings for ethnic minorities in other cities of the world and it was concluded that appreciation of the Belfast patterns would be greatly increased if there were more information on social processes, segregation and the spatial pattern of ethnic minorities in other cities.

Not all work in Ireland, though, has been concerned with segregation within the city. In a paper by Walsh (1970) an attempt was made to determine the relationship between religion and demographic behaviour, principally in terms of birth rate, migration and occupational distribution. The comparison on the one hand of Roman Catholic findings with those for other denominations, and on the other hand of demographic facts about Northern Ireland with those about Eire, led him to the conclusion that the use of religion to classify the population of Ireland was meaningful from a demographic point of view.

For the remainder of the British Isles there is a paucity of literature which deals with the geography of religion. The one

major exception is a publication by Gay (1971) which is a study of the geography of religion in England. Since Gay's research concerns not only a territory that is contiguous to that which is the subject of this thesis but is also a recent work, it must be given close attention. Gay provided a comprehensive review of the international contributions to the geographical study of religion, analysed the nature and scope of source material and subsequently offered explanations for the geographical patterns of allegiance in England. If one had to select the major contribution made by this work, it is surely Gay's thorough scrutiny of the data. After examining the range of data sources and their denominational variety, Gay came to the conclusion that the 1851 Census of Religious Worship and Education provided the mid-Victorians with a better statistical source than is currently available and, having reviewed the conditions which attach to this data supply, he considered that he had 'a reliable and detailed historical backcloth' (Ibid., p.63). The recent patterns of denominational allegiance were then placed against this backcloth so that the contemporary distributions were 'thereby seen as a part of a dynamic process' (Ibid.). It is in the analysis and clarification of these distributions that Jones (1975, p.8) identifies the strength of Gay's work.

However, if one were to select the most significant flaw in Gay's work it would probably be represented by the over-commitment to the 1851 Census and its patterns. Gay has thoroughly examined the historical evidence but in doing so has relatively neglected present-day statistics, thus creating an imbalance. In his thesis Gay appears to view narrowly the options which religious data

provide for the geographer:

> The very limited nature of contemporary statistical data on religion means that any geographical investigation has to be either of a local area whereby the geographer has to collect his own source material, or of the country as a whole viewing the present distribution patterns from a historical perspective.
>
> (1970, Vol. I, p.153).

This opinion explains his emphasis upon historical data but the concentration upon such sources raises the question of whether it is possible to achieve a geography of religion if, as Jones (loc. cit.) considers, the explanation of these distributions require that this aspect of social geography be seen in relation to many others. In spite of these criticisms, Gay's study is one of the best statements yet produced of the geographer's role in the study of religion and will clearly provide, as he hoped, a 'jumping-off ground for future studies' (1971, p. xviii).

## 2.3 THE RELEVANCE OF STUDIES IN THE SOCIOLOGY OF RELIGION

In the previous sections we have seen that geographers have made notable and diverse contributions to the study of religion but it is also noteworthy that religion has aroused even greater interest in other disciplines. The writings of sociologist about religion appear to be especially prolific and this section assesses whether the geographer might learn from their experience.

One of the foremost statements of the relationship between the disciplines of sociology and geography is that given by Watson. Watson (1951) stated that the geographer must take social factors into account. Both the geographer and the sociologist concern themselves with the distribution of social phenomena but:

> . . . the sociologist is interested in processes rather than patterns; he discusses the sociological aspects of a region, not in order to bring out the personality of a region, but to understand the processes of social development there.
>
> (Ibid., p.470).

So the fundamental difference is one of emphasis, since Watson confirmed that he did not mean to imply that social geography is not interested in processes, but merely that it cannot afford to make them its chief object of study. Consequently one might expect that an overlap will occur between the different disciplines in aspects of the study of religion.

A recent statement by Jones (1975, p.7) concurs with Watson. Jones considers that an understanding of the patterns which arise from the use that social groups make of space as they see it must involve some appreciation of the processes involved in making and changing such patterns. However, since our knowledge of many aspects of the patterns alone is still sketchy, or even rudimentary, this justifies concerted efforts to make serious statements of distribution as a starting point.

In fact, the establishment of such distribution patterns has become an important aspect of the work of sociologists who study religion, especially in France. An early study of the sociology of Catholicism in France was carried out by Le Bras (1951) and this reflected a growing concern for the need to study the organisation of the Church and improve its efficiency in a changing world. Reaction against vague conclusions encouraged Le Bras to attempt a rational statistical analysis of religious practice:

> . . . with a view to a territorial and social geography of church-going among French people.
>
> (Ibid., p.30).

The greatest contribution of Le Bras to achieving greater understanding has been his emphasis upon 'vitality' whereby he distinguished between the different quality of religious behaviour as well as quantity.

Unfortunately the impetus of Le Bras in the sphere of 'vitality' has largely been lost, probably owing to the practical difficulties involved in its measurement. There has since been a trend to sociography which is a label given to attempts to establish correlations between basic attendance statistics and environment or social class. For example, in 1954 Boulard produced a religious map of rural France. This map showed differing regions of practice according to a threefold classification of majority practice, minority practice and a mission area. These differences were then correlated with the social and physical environments past and present to seek explanations.

Corresponding work on distributions has been carried out elsewhere in Europe. For example, in a map of religious attendance

in Belgium by Collard (1952) a strong geographical variation in practice was highlighted between the well-attended situation in the north and the less well-attended situation south of the French-Flemish linguistic divide. In a similar vein, a geography of church attendance in Spain by Duocastella (1965) pointed out a geographic contrast in the rural context between the Catholic north and the anti-clerical coastal and southern areas, while in urban areas as a whole attendance was diminishing. In Norway, researchers are fortunate in that a question on religious affiliation has always been asked at the national census (Vogt, 1966, p.439). Vogt has reviewed the opportunities, and the previous attempts, to make use of these data for Norway. He felt that since great differences in religiosity have arisen within a homogeneous population which has been exposed for centuries to the same ecclesiastical status quo Norway must, therefore, provide an interesting test-ground for theories about the importance of geographical factors on religion, in particular of communication facilities, density of population and types of economic life (Ibid.).

The relevance of sociological study is not, however, restricted to precedent in the presentation of religious distributions or to pointing to certain geographical factors for consideration. Another relevant sphere of sociological analysis is the branch which is entitled social ecology. This is a well-developed field of study found in the work on the sociology of urban areas by, for example, Gist (1933) and as such is a field from which geographers frequently borrow (Jones, 1975, p.3). An example of a relevant case study in social ecology is that of Myers (1962) who dealt with

church distribution patterns and movement within the Seattle Standard Metropolitan Area. Three propositions, which he considered to follow from previous work on church ecology, were scrutinised:

> (a) There are distinct patterns of spatial distribution for different types of religious organisation.
>
> (b) Spatial movement is a common form of adjustment to environmental problems.
>
> (c) The general pattern of movement by churches is centrifugal, tending towards the outer and suburban rings of the metropolitan area.

Although several of the techniques employed by Myers are sociological and his aims are sociological, the basic geographical content of these propositions cannot be denied and therefore should not be neglected by the geographer.

Lastly, there have been several sociological studies in Britain, in addition to those of secularisation mentioned in Chapter I, which could be of relevance to geographers studying religion. A significant contribution has been made by Currie et al. (1978) which although largely aspatial places a useful emphasis upon the need for, and the methods of, study of the demography of growth:

> . . . neither historians nor sociologists attempt to explain how and why churches get, keep, and lose their members.
>
> (Ibid., p.4).

In addition, many case studies have been undertaken and although these are highly individual and concern diverse areas - for example by Gill (1976) for a parish in Edinburgh, by Sissons (1973) for

Falkirk and by Nelson and Clews (1971) for the urban district of Dawley near Birmingham - they provide useful background material for geographical study.

## 2.4 TOWARDS A RATIONALE FOR THE GEOGRAPHY OF RELIGION

Having examined the literature which deals with the geographical interpretation of religion, and even allowing for the selectivitiy of this review, the impression that its volume is relatively small is conveyed. Yet, at the same time, these writers have succeeded in presenting the fundamental questions and some of the answers. Moreover, they have shown that religion is a valid subject for geographical research and that such research can have a pragmatic application in planning. It has also become apparent that the experience gained by sociologists has a definite relevance to the geographical study of religion.

In more specific terms the need for further case studies has been illustrated, both on a national and a local scale. Such studies should be founded upon a thorough analysis of distribution patterns but to achieve explanation other social distributions besides the religious must be considered. There would be benefits in viewing the contemporary distributions as part of a dynamic process by giving attention to previous distributions. Environmentally deterministic explanations might be appropriate to the historical geography of religion while contemporary distributions will require systematic and non-deterministic analyses. Most important of all,

there is a need for the integration of studies at different levels in order to develop a fuller explanation of distributions.

Clearly, there is also an opportunity for the further development of methodology of the geography of religion. In general this would be required for the analysis of macro-scale distributions but there is also a need for means of studying the congregation. Last, but not least, this review has demonstrated that the fundamental requirement for the advancement of geographical study of religion is that there should be a suitable data base, both in terms of quantity and quality, and this forms the subject of Chapter III.

# CHAPTER III

# RELIGIOUS DATA: ITS QUANTITY AND QUALITY

# CHAPTER III

## R E L I G I O U S  D A T A :

## I T S  Q U A N T I T Y  A N D  Q U A L I T Y

One of the main difficulties of studying formal religious adherence and its spatial manifestations in Scotland is the lack of secondary data on a national scale. The purpose of this chapter is to describe in detail the available data. In doing this it is possible to reveal the accuracy of the available data and to become aware of the assumptions that are involved in their use.

The paucity of the data results from the fact that there has been no national test of religious composition included in a population census organised by the State for Scotland except for the Census of Great Britain, 1851: Religious Worship and Education, Scotland. Even the census of 1851 was restricted to the recording of attendance on one particular day and it has not been repeated since. The only other official statistics published by the State relate to marriages.

It is not impossible to go some way to overcoming this deficit, though doing so does involve a lengthy process of searching for, and editing, data from diverse sources. In conducting an

overview of the available data the following guidelines have been used:

(a) What are the relevant data sources?

(b) How reliable are these sources?

(c) In which respects is the data supply deficient?

(d) Can the shortcomings be rectified?

The religious data are viewed within a chronological framework which comprises an early period, the nineteenth century and the present century. Further sources of secondary data which concern variables other than religion will be examined within the chapters in which they are required.

## 3.1 EARLY HISTORICAL DATA

Information relating to the period before the Reformation of 1560 in Scotland is diffuse. The task of integrating such diversity in order to obtain a complete picture is difficult but there are various accounts which have attempted to integrate this information. In the first place, several ecclesiastical histories deal with this period, for example Lucock (1893) and Donaldson (1960). Unfortunately they usually lack quantitative information though one exception is a work by Bellesheim (a translation in four volumes, 1887-90) which gives factual information in the text. In addition, there are specialist studies which make reference to this period, notably Fasti Ecclesiae Scoticanae (Scott (ed.), three volumes, each in two

parts, 1866-71). This work details the history from pre-Reformation years of the parishes of Scotland.

In the second place, there are a few publications which concentrate specifically upon the data of this period. For example, Origines Parochiales Scotiae (Innes (ed.), two volumes each in two parts, 1850-55) gives details of the early history of each parish church. Cowan (1967) confirms that no study of the Medieval Church could hope to be complete without some account of the parochial system, but also states that the only reliable figure that can be suggested for the total number of parishes is that which existed at the time of the Reformation, and even then there is a tolerance either side of the total.

It is only in the post-Reformation period that the supply of data is improved. Some information can be gleaned from the records of the General Assembly and of the individual presbyteries of the Church of Scotland. Historical details for each church of the United Presbyterian Church have been given by Small (1904). However, by no means are these data comprehensive as the researcher lacks easily accessible or published records for other denominations. One noteworthy attempt to rectify this situation was the Statistical Account of Scotland (Sinclair (ed.), 21 Volumes, 1791-9). Compiled within the framework of the Established Church, this publication includes an ecclesiastical description of the population of each parish. The descriptions are, however, inconsistent and are not always quantified, thus detracting from their potential value to the geographer.

The overall conclusion is that an analysis of the historical geography of religion in this period will necessarily be limited in quantitative terms and it must rely heavily for its source material upon a variety of ecclesiastical histories.

## 3.2 THE NINETEENTH CENTURY

During the nineteenth century a major reversal of the previous circumstances occurred in that the availability of contemporary data was greatly increased.

In about 1830 (no exact date is known) Arrowsmith produced a map which showed the site of every parish church belonging to the Church of Scotland which means that it is a useful input to understanding the development of the geography of religion. This source is complemented by the fifteen volumes of the New Statistical Account (Gordon (ed.), 1834-45) which contain a broad spectrum of information about each parish area of the Established Church. The most interesting aspect of this work is the verbal description of the ecclesiastical state of the parish. These descriptions vary in length and, unfortunately, irregularly and inconsistently enumerate the population belonging to the Church of Scotland and to each of the other denominations. Moreover, the valuable possibility of constructing a map of all of the parishes in Scotland is impractical as maps showing parish boundaries are given only in some volumes, while in others the parishes are indicated by name alone. It is not always feasible to compile the missing parish boundary from the verbal description of its delimitation as this often employs the

boundary of another parish to describe its own, even though the other parish boundary may itself be insufficiently determined.

In 1835, a Royal Commission on Religious Instruction[1] was established and this also relied upon the evidence of the ministers of every parish in Scotland. The Commissioners wrote to the minister(s) of each parish in Scotland asking whether any deficiency in church accommodation was alleged and whether they were of the opinion that such allegation was well-founded. Only those parishes in which a deficiency was admitted would be visited by the Commissioners and of the 1057 letters sent, 1049 replies were received, and of these the Commission investigated 552 (The Royal Commission[1], First Report, 1837, p.1). The details of the reports are limited therefore to 53 per cent of the parishes of Scotland. Between 1835 and 1839, nine reports were published though the second and the ninth dealt only with teinds (standardised stipends paid to clergy). Seven reports included details for accommodation and seat rents and, in some but not all the cases, the religious composition of the population of the parish. Although the reports are a valuable source of information, the data set does not provide a full indication of church accommodation and religious adherence for all parts of Scotland.

In contrast to the national inquiries is a report by Cleland (1831) for Glasgow. Cleland provided statistics in addition

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[1] The full title of the Commission was: The Royal Commission for Inquiring into the Opportunities of Public Religious Worship, and Means of Religious Instruction, and the Pastoral Superintendance afforded to the People of Scotland.

to those required of him for the classified enumeration of the population for the national census of that year. Amongst these statistics were those describing the ecclesiastical state of Glasgow but his example does not appear to have been followed elsewhere.

As the number of denominations grew during the nineteenth century so too did the opportunity for published records. A later publication by Ewing (1914), for example, collated the records of the Free Church in the middle and late nineteenth century from the time of its formation in 1843. This provides an accurate account of the origin of each congregation from which it is possible to gain an impression of the developing geography of the Church. The situation is not so satisfactory, though, for other denominations whose small size has meant scattered source material which often occurs in diverse denominational histories published during the twentieth century. However, in the light of the increase in the number of denominations, and the consequent mounting rivalry for membership in the mid-nineteenth century, there arose a great debate about the role of the Established Churches with respect to other denominations in Britain. Pressure grew for a national census to determine religious composition and accommodation, and it is this that provides a major source of information for the study of the geography of religion.

(1) The 1851 Census

The results for Scotland were published in the Census of Great Britain, 1851: Religious Worship and Education, Report and Tables (1854). The task of organisation had been entrusted to Mann who took the basic decision not to obtain the data through a question included in the population census but instead to collect information through observers from visible action. He believed that this method would ensure a more trustworthy result. The details that were required for each denomination on Sunday, March 30th, 1851, were:

(a) the number of places of worship,

(b) the number of sittings in each of (a), and

(c) the number of attendants at each of (a) on Census Sunday.

The published information about these three indices was aggregated by denomination on the basis of counties and burghs as Mann had given a prior assurance that the returns of the individual places of worship would themselves not be published in attempt to ensure a greater degree of co-operation from the clergy. Despite this precaution, however, a non-response did occur. Opposition was encountered from many of the clergy and this could not be suppressed as there were no official sanctions to comply with the demands of the census. As far as it is known, 481 places of worship, or approximately 14 per cent of all places of worship in Scotland, provided no returns at all (Ibid., p.4). Furthermore, since this figure was calculated from a comparison of the number of

places mentioned in the Enumerators' lists with the number of returns received, and since several of the lists were themselves missing, it is probable that this deficiency is greater. In addition, out of the total of 2914 returns which were received, 242 failed to state the number of attendants (Ibid., p.2). Similarly, large numbers of returns lacked information about morning (250 returns), afternoon (148) and evening (85) sittings (Ibid.). This relatively high non-response was compounded by the variation in non-response between denominations. The worst offender was the Established Church in which 24 per cent of the congregations failed to make any return whatsoever. Other denominations ranged in non-response from 16 per cent for the Episcopal Church and the Baptists to 11 per cent in the case of the Catholic Church and seven per cent in the Free Church (Ibid., pp.4-5).

Mann attempted to remedy these deficiencies in a general summary for Scotland for returns defective and others known to be missing. As he did not have the evidence of local Registrars his estimates were founded on the supposition that the places of worship from which no returns, or defective returns, were received contained:

> . . . upon an average, the same number of sittings and attendants as the places of worship from which complete returns were received; and also upon the supposition that they were open in the same proportion at the different times of service.
>
> (Ibid., p.5).

A further source of potential inaccuracy in the results of the census lies in the variation in counting method that may have arisen because of the lack of guidelines given to the respondents. Contemporary critics also argued that since the clergy were forewarned of the coming of the census there was a chance for the 'rigging' of the results by encouraging higher-than-normal attendances on Census Sunday. To be fair, however, it is likely that all denominations would have taken the same precaution. If errors do exist, though, it is a moot point whether they can be assumed to be evenly distributed over the whole country and through all denominations.

Probably the major failing of the data contained in the results of the census is the lack of information that could help in determining exactly what the three services - morning, afternoon and evening - when combined signify in terms of numbers of people as opposed to numbers of attendances. There have been several attempts to identify the exact parameters, but notably that made by Mann who provided an estimate for England and not for Scotland. This estimate was of limited value, though, because it was based on guesswork (Gay, 1971, pp.52-3). One useful means of employing these data is to combine them into an Index of Attendance. The Index is derived by adding the attendance at the three services and expressing this as a proportion of the total population in the county or burgh. The calculation of the Index is based upon the assumption that it is better to retain the full information provided by the census even if it means including some repeat attendances. Provided that the limitations of its derivation are

recognised, this statistic can be employed to enable a broad relative analysis of denominational distribution as well as more specific comparisons within any denomination. A further advantage of this index is that it can be weighted to take account of non-returns on the principle that a non-return has, on average, the same number of sittings or attendants as a return.

Above all it must be remembered that the census was one of attendance on one particular day and thus cannot effectively tell the size or distribution of the entire worshipping community. Furthermore, the census has not been repeated since and in the light of its limitations is best used as only one input to the process of understanding the multi-denominational background to religion in Scotland. Such criticism is not, however, to deny the major contribution that these results can make to an understanding of the geography of religion in Scotland because of its unique nature.

(2) Marriage Statistics

An alternative form of statistic that nineteenth century researchers used is the denominational breakdown of marriages which was given by the Registrar-General for Scotland in the Detailed Annual Report, published from 1861 onwards and which referred to the years from 1855. For example, Ravenstein (1874) attempted to map the distribution of Roman Catholicism in Scotland by using such data. He justified the use of this source by the fact that Roman Catholics tend to look upon marriage as a sacrament and so concluded that the number of marriages might be depended upon to give a result

which closely approached the truth, unless it were necessary to assume that the marriage rate amongst Catholics differed widely from the rest of the population (Ibid., p.102). In A Handbook of the Church of Scotland (4th edition, 1888) Rankin goes so far as to place emphasis upon the distribution of marriages amongst the denominations as a more reliable test, in his opinion, of ecclesiastical proportion in Scotland than the numbers of places of worship and church attendance figures.

This view about the value of marriage statistics is not widely held, however, and has been criticised in particular by Howie (1893, p. xvii). One major criticism is that the users of marriage statistics generally fail to provide an explanation of how such data reflects the strength of religion.

It therefore appears that there are problems associated with the use of both marriage and attendance statistics and that an alternative, or complementary, method for measuring ecclesiastical proportion would be of great value. This option may be provided by membership statistics.

(3) Membership Statistics

Interest in the direct measurement of membership flourished during the nineteenth century, especially in the latter half, and such statistics have since been used commonly as a test of religious composition.

Various authors took it upon themselves, in the second half of the nineteenth century, to present the statistics for a range of denominations existing in Scotland at that time. Johnston (1874) examined the available data but found them to be lacking in the case of the Church of Scotland and so considered that the statistics for this denomination were unreliable. In the absence of trustworthy data Johnston decided to estimate the strength of the Established Church only after investigating the numbers that belonged to the various non-established denominations, both Protestant and Romanist, and then to assume that the remainder belonged to the Church of Scotland. This work was soon to be supplemented by the Distribution and Statistics of the Scottish Churches (1886) which dealt with the Church of Scotland, the Free Church and the United Presbyterian Church in detail, and other denominations in less detail, giving the number of church buildings and in some cases membership within the framework of the synods, presbyteries and parishes of the Established Church. But probably the most remarkable of the works of an individual was that of Howie (1893). His unique publication gave the membership and other relevant information about the congregations of each denomination represented in the presbyteries of the Established Church. The registration district was chosen as the basic unit for the representation of population within the presbytery framework, as opposed to the parish of the Church of Scotland, so as to provide a measure which was approximately applicable to all denominations. Howie did recognise, though, that the areas of the Established Church were not always coterminous with the presbyteries of other Churches and so there would be inconsistencies (Ibid., p. xi). With

the limitations of his work acknowledged, Howie used a variety of source material of both official and local derivation. An example of the latter is the 'Mail' census of 1876 for Glasgow and the leading towns in the West of Scotland (Ibid., p. xx).

During the nineteenth century there were also several official efforts by individual denominations to establish regular publication of their own vital statistics. The earliest of the purely ecclesiastical directories to be published by a denomination in Scotland which contained statistical information on membership was the Catholic Directory for Scotland. This first appeared in 1829 and has been published every year since then without interruption. Estimates for Catholic population did not in fact appear until the issue of 1845, and even then not for every parish or mission. By 1852 more or less every parish or mission was provided with an estimate of Catholic population but it was not until 1950 that the presentation of the figures of the Catholic population was placed on a regular footing in the Directory.

During the last quarter of the nineteenth century many other denominations embarked upon the production of their statistics. The statistics of the United Presbyterian Church were first published in a detailed form in 1879 (Howie, 1893, p.x). In 1878 the Episcopal Church published its first yearbook and this practice has continued since with only minor interruption. The yearbook of the Church of Scotland was first issued in 1885 and has appeared annually since. Such yearbooks provide a data base for geographical analyses. Between 1881 and 1929 these can be supplemented by the

Scottish Church and University Almanac which deals with a wide range of denominations and in all cases lists their places of worship and for some denominations also gives the membership of the places of worship.

The statistics of membership and attendance and their location provide necessary source material for analyses of the historical and contemporary geography of religion in Scotland.

## 3.3 THE DEFECTS OF MEMBERSHIP DATA IN THE NINETEENTH AND TWENTIETH CENTURIES

There are numerous factors which contribute to variability in both the quantity and quality of membership statistics. In order to use these data with confidence, in nineteenth and twentieth century contexts, account must be taken of their limitations.

The greatest source of incongruence between the membership statistics of different denominations lies in the variety of criteria that are used to determine membership. One obvious anomaly is the definition of Roman Catholic membership as compared to that for other denominations. This particular qualification for membership embraces all types of attenders and non-attenders, provided that they are baptised Catholics, regardless of age. By contrast, while membership of the Episcopal Church embraces baptised infants and persons who are not communicants but worship frequently as well as communicants, it does exclude those who are known to have lapsed

from membership. The statistics for the Episcopal Church also give separate figures for the number of communicants and these provide an even more accurate measure of allegiance. Other denominations similarly differ from the Catholic Church in that not only do they stipulate that a member must practise his faith but also membership statistics do not usually include children under the ages of 15 - 17. Clearly, the Catholic definition is more generous than those of other Scottish denominations.

In spite of a stipulation of active practice in non-Catholic denominations, an often criticised form of variability between denominations is the range in the frequency with which the respective denominational 'rolls' are meant to be purged. For example, while a larger denomination such as the Episcopal Church may require that the basic condition for communicant membership be attendance at a 'communion' service at least once in a year, a smaller denomination such as the Church of the New Jerusalem encourages regular attendance at ordinary worship and insists upon attendance at the 'Holy Supper' at all times as a condition of membership.

A peculiarly Scottish phenomenon of denominational allegiance is the special significance of the adherent. Broadly, an adherent can be defined as a person who cannot, or does not wish to, satisfy the procedure established by the individual denomination for membership but who, by virtue of some active participation in a denomination's activities, can be considered to consciously prefer

that denomination. Normally such people are not quantified, or are not separately identified.

In the case of the Free Church, however, the adherent was recognised from 1874 as an entity in itself:

> . . . in the Highlands and Islands . . . each congregation shall give into the Presbytery, along with the communion roll, a list of the whole adherents belonging to the congregation. (Proceedings and Debates of the General Assembly of the Free Church of Scotland, 1874, p.121).

Until 1880 adherents were presented on a twofold scale which varied according to the lower age limit set by the presbytery. By 1880 the decision had been taken to consider officially recorded adherents as those over the age of eighteen in Highland and Island Presbyteries and in Gaelic churches of the Lowland presbyteries. Although the threshold age for an adherent in this denomination has since been altered to sixteen years of age the statisitcs can be accepted without modification. All of these considerations have special significance to the Free Church because of the numerical importance of the adherent.

In the case of the Church of Scotland, however, the importance of the adherent in numerical terms is contested. The adherent was not accorded as much significance as in the Free Church during the nineteenth century:

> . . . there is no reason to believe that the reluctance to communicate exists to the same extent in the Highland congregations of these churches (Church of Scotland) as in those of the Free Church.
>
> (Howie, 1893, p. xii).

In contrast, the adherent of the Church of Scotland has received frequent attention in the twentieth century. An author of the early twentieth century stated that a distinctive characteristic of the Highland type of Calvanism was 'the general unwillingness of regular and reverent church-goers to partake of the Holy Communion' in both the Church of Scotland and the Free Church (A Member of the Royal Scottish Geographical Society, 1905, p.13). In the mid-twentieth century Highet considered that the number of:

> . . . adherents cannot be accurately determined, but there can be little doubt that the Church of Scotland can claim a following appreciably in excess of the total on its communicants roll.
>
> (1950, p.7).

Moreover, the Church of Scotland has given this problem its serious attention and, in reviewing the situation in the Highlands and Islands, the Panel on Doctrine recognised in the introduction to a pamphlet of 1968 that many of the regular adherents in this area were not members in full communion. Still, however, the Church of Scotland does not stipulate that ministers or presbyteries should make formal returns on the number of adherents.

A final form of variability is that which can exist within the definition of membership of any one denomination. In a time study it is not safe to assume that the definition, or method of collecting, of membership data has always been constant within each denomination or that the criteria for measurement have been applied in a rigorous and uniform fashion throughout the

country. However, such errors are not usually quantifiable and must therefore be accepted while at the same time remembering that they may be present.

The drawbacks of the membership statistic, however, are not limited to those of variability alone. A further disadvantage of the use of such data is that they will never be totally comprehensive since a few denominations are unwilling to supply statistics for reasons of secrecy, or simply because they do not see the need to keep records of membership. An even more fundamental criticism of the usefulness of membership statistics to test religious composition is that they fail to take account of quality. Attendance statistics, it can be argued, would, if available, give an indication or religiosity, or the degree of allegiance, while membership statistics encompass a range of possible attendance rates within the rules set out by the individual denomination. Statistics of attendance are, however, scarce with the major exception of the 1851 census.

To decide whether the flaws that are characteristic of membership statistics are acceptable or not, it is necessary to be aware of the potential applications of such data. Clearly, in the light of the numerical and areal importance of adherents in the Highlands and Islands and the failure of the Church of Scotland to record their presence, an attempt will have to be made to recognise these additional quantities in later analyses of membership data. Intra-denominational differences in definition are also important for comparison of membership and social variables while

inter-denominational differences in definition make it necessary to exercise caution in comparing the strength of denominations.

## 3.4 THE TWENTIETH CENTURY

The supply of contemporary data has not improved significantly in comparison to that of the nineteenth century. Denominations that are in favour of the publication of their statistics have continued to produce yearbooks but have not radically altered or made noticeable efforts to standardise their methods of data collection or presentation in respect of other Scottish denominations.

Endeavours have been made by Highet (1950 and 1960) to collate the available statistics concerning the Scottish Churches in the immediate post-War period. Highet recognised the limitations of officially gathered data. He noted that some church members are under twenty years of age but considered that this group are probably 'a small proportion of denominational totals' in the non-Roman Churches (1950, p.75). Consequently, he felt justified in altering the Catholic figure alone to exclude those persons less than twenty years of age and then treating this total as roughly comparable to the unadjusted figures for the Protestant Churches. Highet's work has recently been complemented by that of Currie et al. (1978) who although dealing with the British Isles do give separate attention to Scotland. Part of their purpose was to collect and compile numerical data on many aspects of church life from the eighteenth to the twentieth century and so the appendices of their work include

the collated statistics for several Scottish denominations. A further source of data, besides membership statistics, which is noted by Currie et al. is the opinion poll but these surveys are infrequent and so areally specific in Scotland that they cannot be of use to the analyses that follow.

Only recently, however, has the lack of a standardised form of collecting the data of different religious bodies been formally acknowledged (British Council of Churches, Department of Mission and Unity, 1972). They reiterate the dangers of using membership data per se without attempting to make such statistics more compatible and to this end they encourage denominational co-operation. As yet, an improvement in the nature of denominational statistics remains simply an ideal. The geographer concerned with the study of religion in Scotland must therefore accept the available data in their existing form, provided that they are used with caution, and supplement them where possible by personal survey subject to time and cost constraints.

In obtaining present-day denominational statistics for Scotland it has not been found possible to always refer to a published source. Direct inquiry has been made in many cases to the relevant denominational official and in all circumstances where information has been obtained in this way, a record has been placed in a list in the Appendices so as to provide a check upon their origin and reliability. Similarly, for each of the congregations that are studied in Chapter IX the name of the

clergyman who provided the roll of membership is recorded in the Appendices. The measures that have been taken to control the quantity and quality of data arising from a questionnaire survey of congregations will be presented in Chapter VIII.

## 3.5 CONCLUSIONS AND IMPLICATIONS

This review has revealed the weaknesses of historical and contemporary data on religion in Scotland. As there are no substantial possibilities for increasing the supply of statistics of the past, or for amending their weaknesses, there exists a basic limitation upon any analysis of the historical geography of religion. In the post-World War Two period, though, the opportunity to exercise control over data is increased in relation to earlier periods. Not only are there diverse sources in the present-day but also there is an opportunity to supplement the data by means of personal survey. However, despite the range of improvements and additions which can be visualised and executed, there remain two fundamental constraints of the data upon subsequent analysis. Both of these stem from the lack of an inquiry about religious adherence in a national population census, except in 1851. In the first place, this means that there are no data available that can help the geographer to establish the exact location of the entire church-going population, and by default the non-church-going population. On a small scale it is possible to establish this for a small number of congregations but the task of mapping every member of each congregation for even small areas of Scotland using

the individual congregational lists, provided that they were always available, would not be feasible. An alternative is to use the church building as a surrogate for the location of the whole congregation and with the exception of the questionnaire survey this is the method that is employed in the following chapters.

In the second place, the lack of a national census of religious adherence with the exception of 1851 means that there is no way of relating church members exactly to socio-economic and demographic data revealed by the census. Such correlations are, however, possible at more generalised scales by using, for example, units of civil administration as a common framework.

In another way, though, the limitations posed by the lack of contemporary census data on religious adherence are probably not as great an impediment to analysis as might at first appear. Such census data usually constitute a test of religious affiliation as claimed by the respondent rather than a strict measure of practice in the form of recorded attendance and, where applicable, membership. Perhaps, therefore, comparison of census variables and known membership will be at least as worthwhile as a result achieved from specific comparison of census variables and claimed affiliation. It is realised, however, that knowledge of claimed affiliation would be very significant to the achievement of a complete geography of religion, that is one which also examines the influence of religion upon other variables, since perceived denominational characteristics may be as important as actual characteristics in influencing behaviour. The purpose of this thesis is, however, as stated in Chapter II, to

concentrate upon religion as a dependent variable and so its role as an agent in social geography awaits further study.

In conclusion, whatever the shortcomings of the data supply, this review has signposted them so that their importance may be assessed in context in the following chapters.

# CHAPTER IV

# AN HISTORICAL GEOGRAPHY OF RELIGION IN SCOTLAND

# CHAPTER IV

# AN HISTORICAL GEOGRAPHY OF RELIGION IN SCOTLAND

The purpose of this chapter is to examine the historical geography of Scottish religion since recourse to the past enables a greater understanding of basic aspects of the contemporary geography of religion in Scotland. Within this context the chapter has three main aims. The first concerns the distinct regionality of the distributions of the membership and institutional structures of different Scottish denominations in the present century. It is the intention to show that these distributions can be explained by historical events, circumstances and processes. The founding in Scotland of a denomination often resulted from a complex of non-geographic causes. The concern of this chapter, however, is not with examining these casues but rather with establishing their subsequent spatial expression as an element in the geography of Scottish religion. The degree to which this aim is achieved can be judged by comparing the distributions that are presented in this chapter with those of the post-World War Two period in Chapter VI.

The second aim is to demonstrate that a study of past events can help to account for the relative status and diversity of, and the relationships between, denominations in Scotland. The pursuit of this aim is, however, subject to some simplification as

this chapter cannot be exhaustive of all denominations or examine all of the circumstances involved in the various schisms and unions which created individual denominations.

The third aim is achieved by adopting a chronological framework in which temporal changes in church membership and practice can be assessed. It is hoped that this examination may identify a time period which warrants further study. In suggesting causes particular attention will be paid to the concept of secularisation and its applicability as an explanatory tool.

As several denominations are to be studied it will be necessary to refer to a variety of secondary sources, each of which tends to deal with individual denominations, especially for the period up to the middle of the nineteenth century. After this date primary sources, mainly the Census of Great Britain, 1851: Religious Worship and Education, Scotland, Report and Tables and officially published denominational statistics, become more readily available and are therefore consulted frequently in this chapter.

For ease of organisation, a chronological framework is adopted for the sections which follow. The analyses begin with the pre-Reformation period, then the years between 1560 and 1800, and are followed by separate examinations of the nineteenth and twentieth centuries.

## 4.1 THE PRE-REFORMATION PERIOD

During this period the Church of Rome was dominant within Scotland. By the twelvth century its organisation conformed to that of Rome as the Norman influence had overcome its peculiarities such that the Scottish Roman Church joined the mainstream of Western Christianity. Although the Church began in the West its strength grew in the East and was by the end of the period largely concentrated in the East. The map in Figure 4.1 shows that there were few religious houses in the central Highland area and that the Cathedrals of the Highland Sees were located in the parts of the Diocese which were nearest to the Lowlands. The only exceptions were those Cathedrals that were located on islands in the West. The map does not, however, show the parishes. Cowan (1967, p.v) suggests that there were approximately 1028 parishes in existence, when discounting unions, at the time of the Reformation and that of these, approximately 86 per cent had the parsonage revenues appropriated. The appropriation of such revenues for the benefit of a few religious institutions was one of the principal contributory causes of the Reformation in 1560.

## 4.2 1560 TO 1800

### (1) The Established Church

The Reformation meant the demotion of the Church of Rome as the national Church in Scotland and its replacement by a Reformed Church which has become known as the Church of Scotland. In 1581

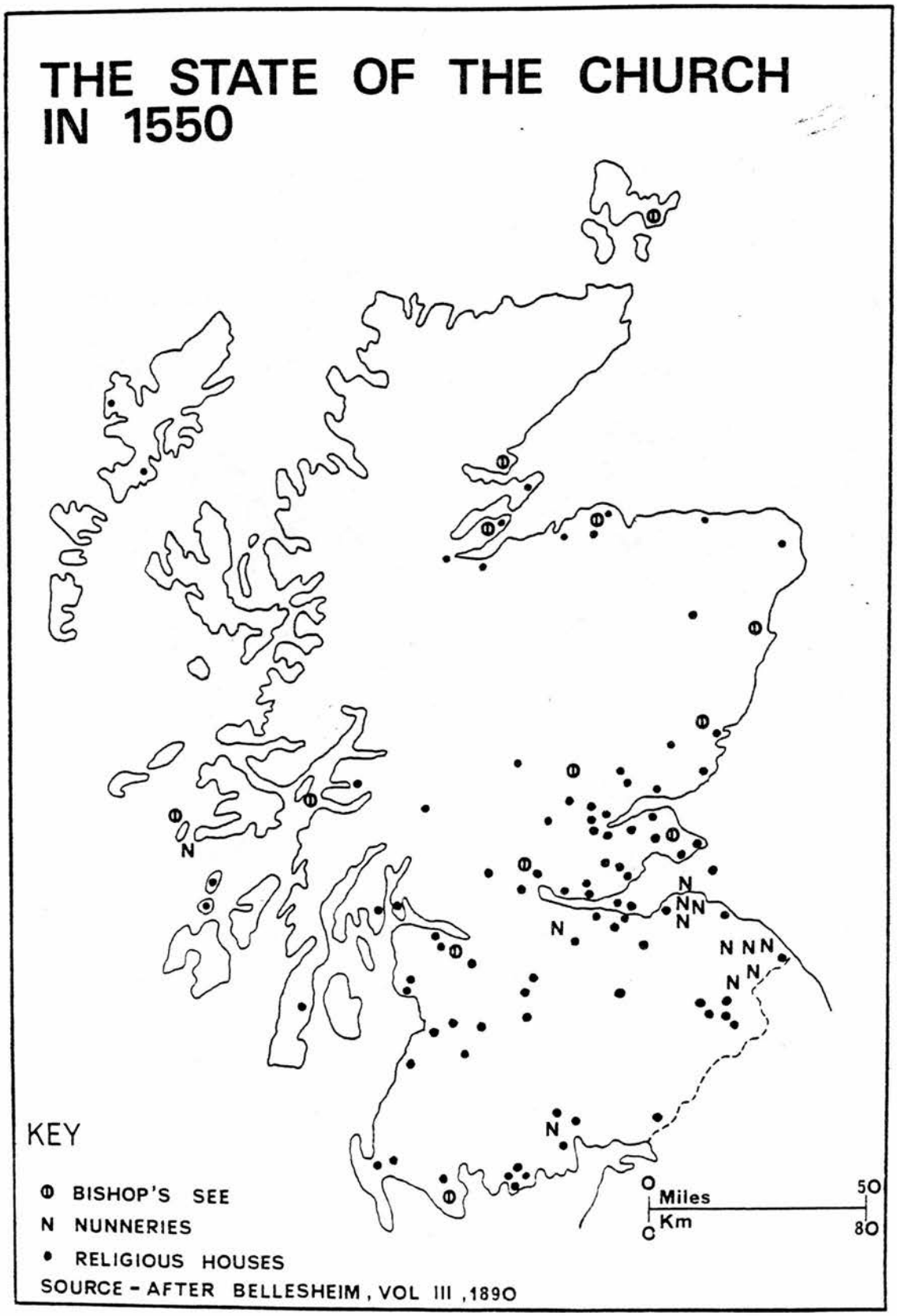
THE STATE OF THE CHURCH IN 1550
KEY
Φ BISHOP'S SEE
N NUNNERIES
• RELIGIOUS HOUSES
SOURCE - AFTER BELLESHEIM, VOL III, 1890
0 Miles 50
0 Km 80

Figure 4.1

the new Church comprised about 924 parishes which when accounting for unions numbered about 600 (Burleigh, 1960, p.201). The advance of the Reformed Church in rural areas however, especially in the Highlands, was hindered by difficulties of travel and by incessant feuding whereas the principal means of church extension in urban areas operated with some success through the establishment of 'burgh' churches by the municipal authorities. As a rule the burgh parish church stood on the site of the pre-Reformation church and in many cases was incorporated into the same building (Campbell, 1932, p.186). Nevertheless, this was a slow procedure which lagged behind the faster rates of population growth towards the end of the eighteenth century. Campbell (Ibid., p.194) has shown for example that no additional religious accommodation was provided in Glasgow between 1782 and 1819 even though the city trebled its population during that period. Another method of church extension was the establishment of chapels-of-ease by individual congregations which supported them as daughter churches. Although both methods of church extension were of assistance in urban areas they were not appropriate to remote rural districts which continued to be poorly provided for by the Established Church.

The eighteenth century also saw two secessions from the Church of Scotland, principally in opposition to patronage. The first took place in 1733 and by as early as 1740 the first secession had 40 congregations mainly in the rural areas and county towns of the Lowlands (Mackie, 1970, p.298). It continued to grow steadily by attracting the more evangelical of the clergymen of the Church of

Scotland. The second secession occurred in 1761 and by 1766 the dissenting bodies had 120 places of worship attended jointly by about 100,000 people (Burleigh, 1960, p.284). Both of the secessions tended to comprise Lowland congregations as each congregation had to be self-financing and this had a fundamental influence on their later distributions.

(2) The Roman Catholic Church

The Church of Rome was not entirely destroyed by the Reformation as its remnants continued to survive in spite of legislation for its suppression. This denomination tended to survive in larger numbers in more isolated areas which were less easily policed and were given the protection of noble families. The vigorous work of Catholic missionaries in these areas also helped its survival. As a result of its isolation the Catholic Church developed characteristics which made it a peculiarly Scottish branch of the Catholic Church. To a small extent, though, the Catholic Church also survived in the Lowlands. Sanderson (1975, p.89) has shown from the records of recusancy, that is the reported non-attendance at the services of the Established Church, that Catholicism did continue after the Reformation in the Lowlands though it did temporarily wane in the 1570s. The map in Figure 4.2 shows recusancy after 1570 for the remainder of the sixteenth century. However, the strength in the Highlands was by far the greatest and by 1681 12,000 of the estimated 14,000 communicants in Scotland were found in the Highlands and Islands (Bellesheim, 1890, Vol. IV, p.128).

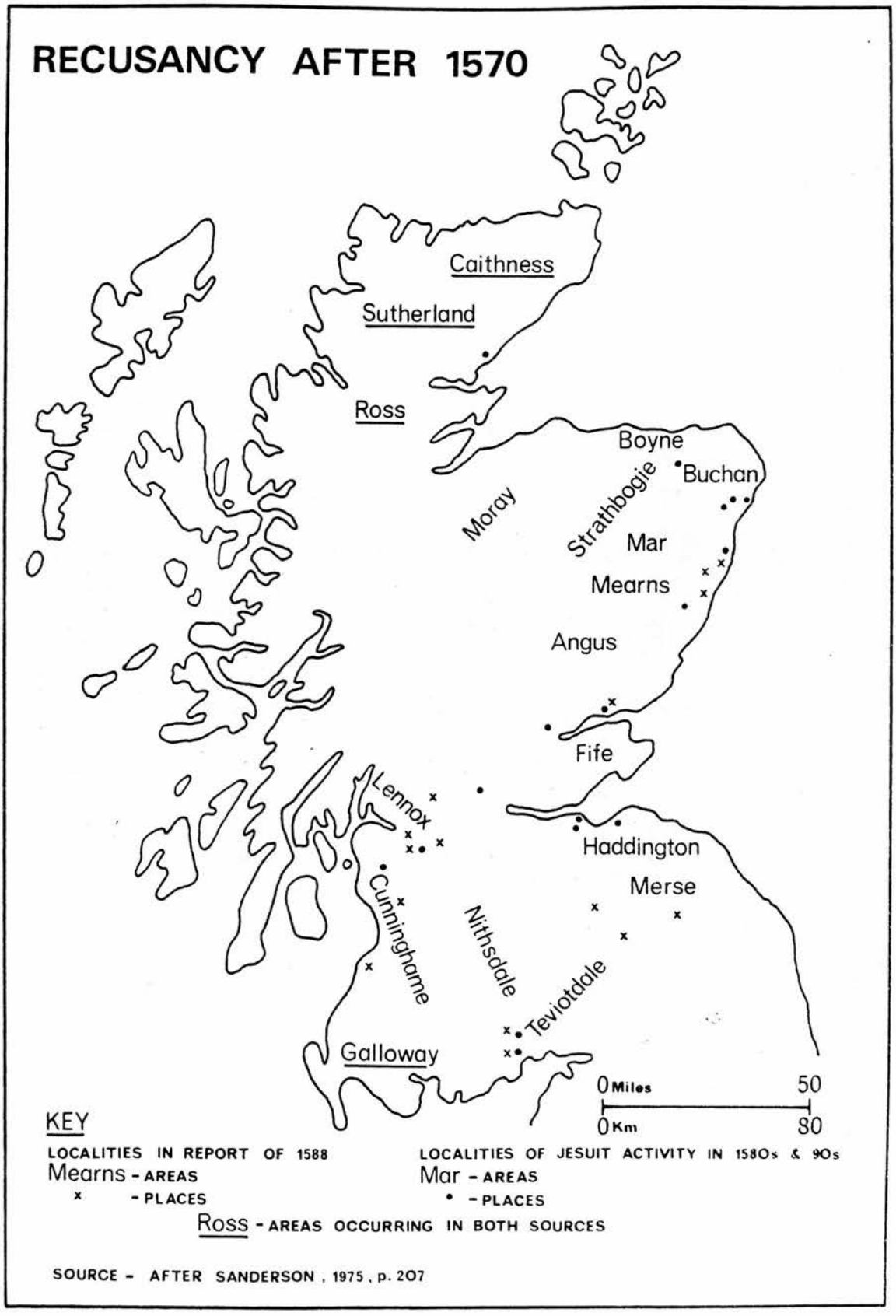
RECUSANCY AFTER 1570
Caithness
Sutherland
Ross
Boyne
Buchan
Moray
Strathbogie
Mar
Mearns
Angus
Fife
Lennox
Haddington
Merse
Cunninghame
Nithsdale
Teviotdale
Galloway
0 Miles 50
0 Km 80
KEY
LOCALITIES IN REPORT OF 1588
Mearns - AREAS
x - PLACES
LOCALITIES OF JESUIT ACTIVITY IN 1580s & 90s
Mar - AREAS
• - PLACES
Ross - AREAS OCCURRING IN BOTH SOURCES
SOURCE - AFTER SANDERSON, 1975, p. 207

Figure 4.2

The Catholic Church continued to grow and although it suffered some weakening in the eighteenth century, firstly because of allegiance to the Jacobite rebellion and the consequences of the subsequent Penal Laws and secondly because of voluntary emigration to North America in the latter years, it had a sizeable allegiance by the end of the century. In 1779 the General Assembly of the Church of Scotland, which tended to under-estimate the number of Catholics, estimated that there were approximately 20,000 Catholics in Scotland (Ibid., p.228). The corresponding Catholic estimate from Bishop Hay's census in 1780 was of 17,000 communicants which would raise the total number of Catholics in Scotland to some 30,000 (Ibid., pp.228-9). Most of the Catholics remained in the Highlands and Islands for the Bishop identified a Catholic population of only 6,625 in the Lowlands, South-West and North-East. These Catholics were apportioned as follows:

TABLE 4.1 CATHOLICS IN THE LOWLANDS OF SCOTLAND ACCORDING TO BISHOP HAY'S CENSUS, 1780.

| | | | |
|---|---|---|---|
| Dumfries | 308 | Edinburgh | 800 |
| Dalbeattie | 168 | Perth & Dundee | 130 |
| Crieff | 118 | Mortlach | 372 |
| Tomintoul | 500 | Strathisla | 220 |
| Glenlivet | 810 | Fochabers | 750 |
| Dufftown | 127 | Presholme | 1150 |
| Huntly | 325 | Buchan | 130 |
| Deeside | 247 | Aberdeen | 470 |

Source: The Catholic Directory for Scotland, 1852, p.72.

The relative significance of Edinburgh is also apparent from this table. Edinburgh had the largest Catholic population of any town in Scotland at this time. In spite of these figures, and although the Relief Act came in 1793, it was still dangerous to admit to being a Catholic in the late eighteenth century and so there were only twelve Catholic churches in Scotland prior to 1800 (Bellesheim, 1890, Vol. IV, p.268).

(3) The Episcopal Church

The Episcopal Church originated when Presbyterianism was formally restored in 1690 after Charles II had attempted to impose the Episcopal system of church government upon the Church of Scotland. This meant that those who adhered to Episcopal ideals were thereafter outside the Established Church. It has been estimated by a Presbyterian historian (reported in Goldie, 1951, p.29) that at this time more than two thirds of the Scottish population supported Episcopacy[1], but after 1690 this figure was considerably reduced. One of the main reasons for further reduction of the support for the Episcopal Church was its adherence to the Jacobite cause, 1715-45, after which the Penal Laws were restrictive of its activities. The Episcopal supporters were, however, organised territorially in 1766 as the Scottish Episcopal Church. Its membership was strongest in the North East and many parts of the Highlands and even before the repeal of the Penal Laws in 1793, which brought peace with the Government, the Church was growing.

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[1] A system of church government by Bishops as opposed to Presbyterianism which was founded on the principle of the equal status of all Ministers.

(4) Other Denominations

Since the Church of Rome originated from before the Reformation and the Church of Scotland is the Reformed Church it is justifiable to regard these as the indigenous Churches of Scotland. Similarly, it might also be justifiable to regard the Episcopal Church as indigenous since its philosophy had long been an alternative to Presbyterianism as a means of church government just as the philosophy of the Reformed Presbyterians was an alternative to the form of Presbyterianism chosen by the Established Church.

Later developments in eighteenth century reflected off-shoots of the indigenous Presbyterian Church or represented influences from England. We have already noted the secessions from the Church of Scotland but there were also further native growths which attracted clergy from the Established Church. The two notable native developments were the Baptist and the Congregational Churches. Although Congregationalist ideas had long existed they were given positive impetus by the Haldanes at the end of the eighteenth century. The Haldanes were also largely responsible for the development of the Scottish Baptists. The first Baptist Church was established in Keiss in 1750 by a nobleman who had been influenced by English example, but the Church that was established in Edinburgh in 1765 marked the first of the Scottish Baptists who were to grow as a denomination and reflect a purely native movement.

Two denominations were established in this period in Scotland as a result of external influences. The Quaker (Society

of Friends) influence first entered Scotland in the seventeenth century though they never became numerically strong (Burnet, 1952, p.184). The first Methodist society in Scotland was formed in 1755 (Swift, 1947, p.46) and this Church reached a membership in excess of 1000 in the last decade of the eighteenth century (Currie et al., 1977, p.139).

In conclusion, by the close of the eighteenth century the regionality of Scottish religion was already becoming well-established and the process of diversification had begun. The Church of Scotland was the national Church but was superseeded by the Catholic Church in the Highlands. The Episcopal Church had developed in the North East in particular. Both the Episcopal Church and the Catholic Church had also established support in Edinburgh. Secessions from the Church of Scotland occurred and drew support mainly from the Established Church in the Lowlands. New denominations were established mainly in the eighteenth century, both from native and English influence, and these attracted dissenters from the Established Church and were biased towards the Lowlands and larger towns.

## 4.3 THE NINETEENTH CENTURY

The nineteenth century is the most significant period in the development of the geography of Scottish religion. Not only was there further development of denominational diversity but also massive population change and substantial immigration emphasised the regionality of Scottish religious allegiance. In view of the importance of population change in the nineteenth century it is

apposite to outline its characteristics before proceeding to examine the geography of individual denominations. This description of population change in the nineteenth century draws from two sources: Flinn (1977, pp.301-315) and Osborne (1958).

(1) Population Change

Webster's Census of 1755 estimated that the population of Scotland totalled 1.3 millions (Kyd (ed.), 1952). At the turn of the century the population of Scotland was 1.6 millions and by 1841 this figure had risen to 2.6 millions. By taking the comparable time period of the late eighteenth century, the relatively large size of population expansion in the early nineteenth century is highlighted. During the nineteenth century the rate of population growth prior to 1851 was faster than that of the latter half of the century, though both the 1870s and 90s achieved rates comparable to those of pre-1851. The fastest rates of the century were, however, in the first three decades.

Growth occurred mainly in urban areas and was accommodated, after 1851, almost entirely in the Lowlands. The growth of urban areas was a function of both natural increase and in - migration from the rural areas of Scotland and from Ireland. The fast rates of urban growth were such as to raise the proportion of the Scottish population in towns of over 5000 people from little more than one-fifth to almost one-third. The cumulative result of this growth was that the proportion of urban population living in the Lowlands never fell below 83 per cent throughout the period after 1801, or

below 87 per cent after 1841, though the rate or urbanisation did decrease through the nineteenth century.

The impact of differential population growth and the residential preference of the Irish immigrant can be seen from Table 4.2. This table is derived, using Osborne's regions, from the Census 1971 Scotland, Population Tables, Table 2, p.1. The most notable feature of this table is the large increase in the proportion of population in the Lowlands, particularly in the West Lowlands - Dunbarton, Lanark and Renfrew counties. Concurrently, there were losses in the share of Scotland's population of the rural regions to the north and the south of the Central Lowlands. The result of these changes was that the urban field of mission expanded enormously though this did not diminish the importance of rural mission since rural areas remained poorly served until well into the nineteenth century. Immigration had a special significance for the Roman Catholic Church because of the volume of Irish migrants of whom the majority were Catholic.

TABLE 4.2 THE DISTRIBUTION OF SCOTLAND'S POPULATION IN THE NINETEENTH CENTURY.

| Region | Percentage Share | | |
|---|---|---|---|
| | 1801 | 1851 | 1901 |
| Crofting Counties (Zetland, Sutherland, Argyll, Caithness, Inverness, Orkney, Ross & Cromarty) | 18.8 | 13.7 | 7.9 |
| North East (Aberdeen, Banff, Moray, Kincardine, Nairn) | 13.7 | 12.1 | 10.3 |
| Angus and Perth | 14.0 | 11.4 | 9.1 |
| Fife and Kinross | 6.2 | 5.6 | 5.1 |
| Stirling and Clackmannan | 3.8 | 3.8 | 3.9 |
| West Lothian, Midlothian and East Lothian | 10.6 | 11.3 | 13.3 |
| Dunbarton, Lanark and Renfrew | 15.4 | 25.5 | 38.5 |
| Ayr and Bute | 6.0 | 7.1 | 6.1 |
| Dumfries, Kirkcudbright and Wigtown | 6.6 | 5.7 | 3.2 |
| Berwick, Peebles, Roxburgh and Selkirk | 4.9 | 3.8 | 2.6 |
| Total Population of Scotland | 1608420 | 2888742 | 4472103 |

(2) The Episcopal Church

Of the older Churches, the Episcopal Church benefitted least from the population growth of the nineteenth century. However, it did experience a steady growth mainly outside its traditional foothold in the North East, and in particular there was growth in Edinburgh. The expansion was such that between 1838 and 1858 the number of congregations rose from 75 to 150 (Drummond, 1975, p.63). Drummond has suggested (Ibid., p.59) three reasons for the growth of this Church in the nineteenth century:

(a) The increasing anglicising of the Scottish upper classes in the nineteenth century especially because of the education of their offspring in England.

(b) The return to the Church of those whose loyalties had been concealed during the repressions of the eighteenth century.

(c) The appeal of the Episcopal Church to many of the educated upper classes in Scotland, in particular in Edinburgh, in preference to the Church of Scotland.

An indication of the state of the Episcopal Church in the middle of the nineteenth century is given by attendance data from the Census of Great Britain, 1851: Religious Worship and Education, Scotland, Report and Tables (henceforward referred to as the 1851 Census). The figures for the Index of Attendance - total attendance on Census Sunday as a percentage of total population in a county[1] - are mapped in Figure 4.3. This shows, quite dramatically, that while having a small but widespread allegiance in much of Scotland this Church had particular strength in two areas; it was particularly

[1] The derivation of this statistic and the adjustments made to correct for defective or missing returns to the Census are discussed in the previous chapter.

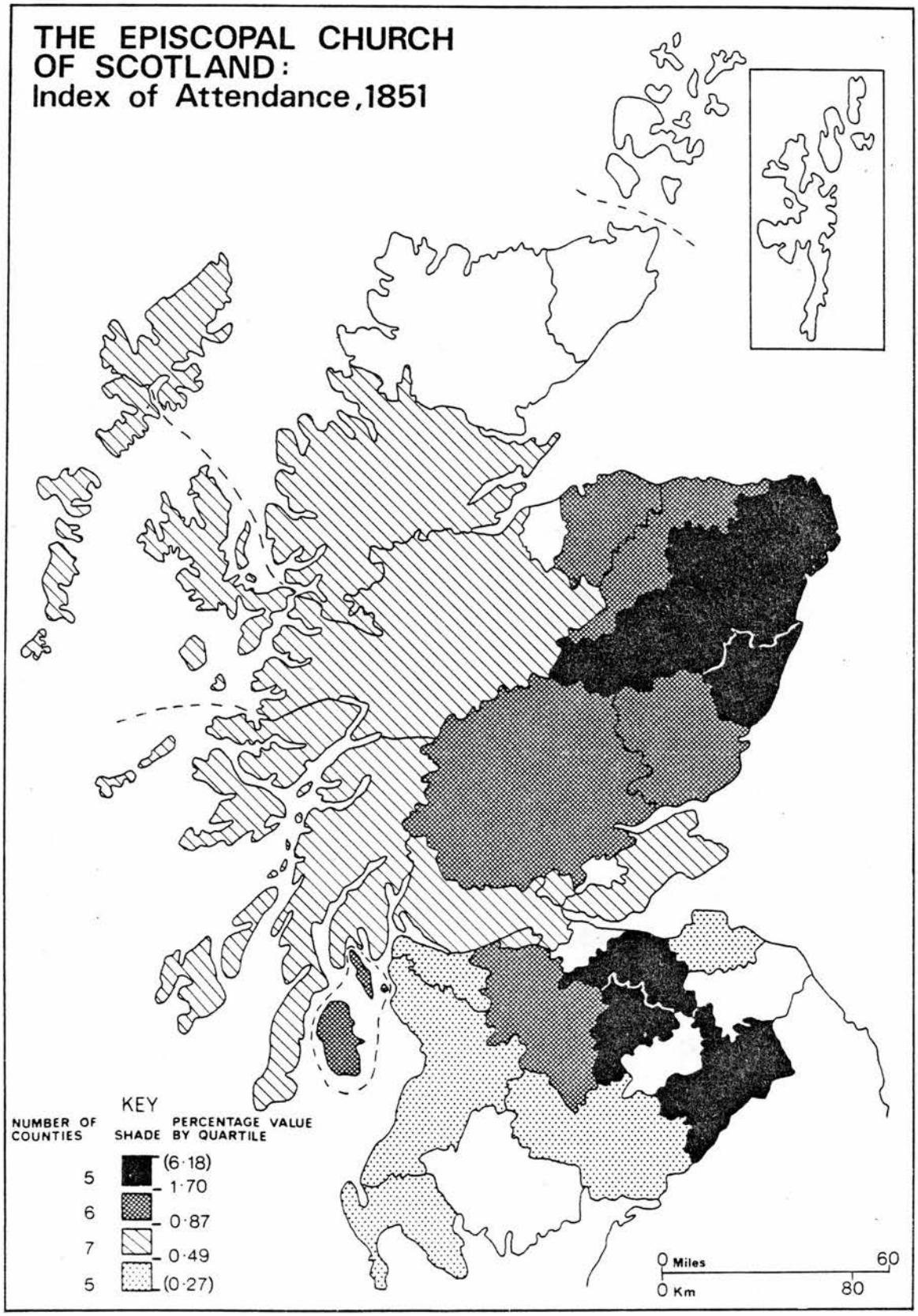

THE EPISCOPAL CHURCH
OF SCOTLAND:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
5
(6·18)
1·70
6
0·87
7
0·49
5
(0·27)
0 Miles
60
0 Km
80

Figure 4.3

strong in the North East, especially Aberdeen and Kincardine counties, and in the South East in Midlothian (Edinburgh) and Roxburgh counties. Aberdeen county had the highest Index of Attendance of the Episcopal Church in Scotland.

(3) The Roman Catholic Church

In the early nineteenth century the Catholic Church began to experience considerable growth. Between 1800 and 1829 the number of Catholic churches increased from 12 to 31, including Glasgow (Bellesheim, 1890, Vol. IV, pp.262 and 275). The reason for the growth was the mainly Catholic Irish immigration which increased after the 1798 rebellion. The migrants were attracted to the Lowlands and were especially associated with the industrial expansion of the Glasgow area. By 1827 the number of Catholics in Scotland was estimated at about 70,000 and, as Table 4.3 shows, over one-third of these resided in Glasgow alone:

TABLE 4.3 THE DISTRIBUTION OF CATHOLIC POPULATION IN SCOTLAND, 1829.

| | | | | |
|---|---|---|---|---|
| Glasgow | 25000 | (50 in 1795) | Presholme | 1400 |
| Edinburgh | 14000 | (1000 in 1800) | Glenlivet | 1500 |
| Dundee | 1500 | | Dumfries | 1000 |
| Aberdeen | 3000 | | Perth | 500 |

Source: Bellesheim, 1890, Vol. IV, pp.273 and 275.

The concentration in Glasgow was therefore chiefly of Irish origin although the Highland Clearances also meant that the numbers of Scottish Catholics in the Highlands declined and many sought employment in the Lowlands. The major period of Irish immigration was, though, in the 1840s. Flinn (1977, p.457) has shown that between 1841 and 1851 there was a 90 per cent increase in the numbers of Irish-born in Scotland. The peak of Irish immigration occurred after the 1845 famine and most of the migrants chose to settle in the Lowlands as can be seen from Table 4.4:

TABLE 4.4 THE IRISH-BORN AS A PERCENTAGE OF TOTAL SCOTTISH POPULATION IN 1841 BY COUNTY.

| | | | |
|---|---|---|---|
| Lanark | 13.3 | Renfrew | 13.2 |
| Ayrshire | 7.3 | Wigtown | 14.2 |
| Dunbarton | 11.0 | Kirkcudbright | 3.7 |

Source: Flinn, 1977, p.456.

In 1841 the immigrants in these areas accounted for 79.6 per cent of the Irish-born in Scotland (Ibid.). As the Irish-born population increased over the 1840s the choice of destination widened such that in 1851 the proportion of Irish-born who were located in the Western Lowlands was 68.1 compared to 73.8 per cent in 1841 (Ibid., p.457). By 1851 there were 145,860 Catholics in Scotland.

The injection of Catholic population through in-migration helped to create a bi-polarity in the Catholic Church as the map in Figure 4.4 of the Index of Attendance from the 1851 Census shows. The old Scots Catholics remained proportionately strong in the Highlands, especially in Invernesshire and in the county of Banff. However, by far the largest concentration of Catholics existed in the Lowlands including Edinburgh , Ayrshire and Wigtown, but most especially in the Western Lowlands in the counties of Lanark, Renfrew and Dunbarton. The Lowland Catholic population was chiefly of Irish origin and so the areal and numerical contrasts between the Highland and Lowland Catholic population were also reinforced by an ethnic contrast.

Although Irish immigration had reached its peak in 1851, the Catholic Church continued to be the fastest growing Church in Scotland during the nineteenth century, mainly because of natural increase. By 1878 the Catholic population in Scotland had doubled since 1851 to reach the figure of 322,600, of whom 222,300 were resident in Glasgow alone. In 1878 the hierarchy of the Catholic Church in Scotland was restored and a reorganisation of territory took place and by this time restrictions upon the Catholic faith had been removed and so the Catholic Church continued to grow throughout the nineteenth century.

(4) The Church of Scotland

As population expanded in the nineteenth century the need for church extension increased. The burgh churches were not sufficient and so the first form of additional church extension was to make

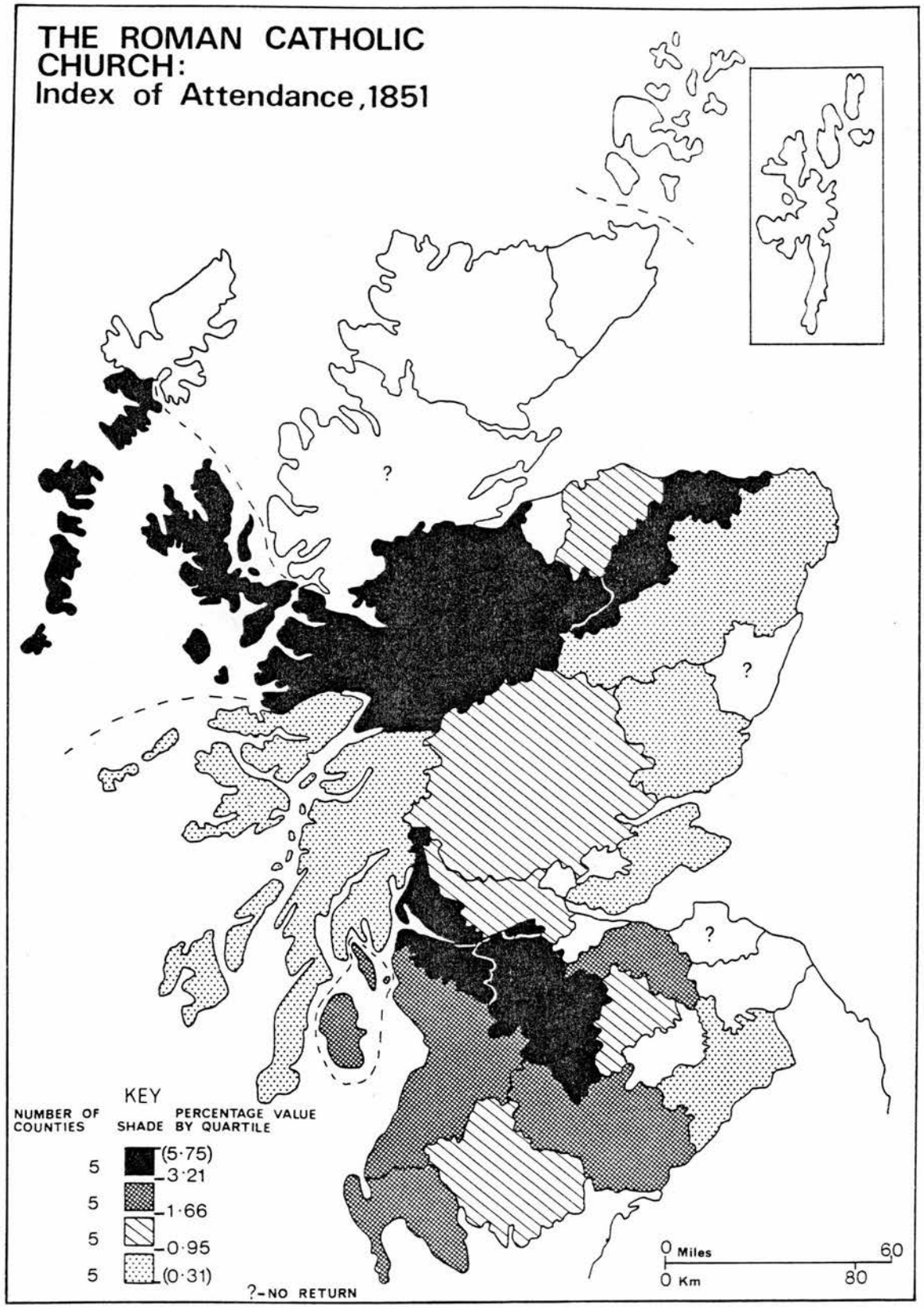

THE ROMAN CATHOLIC CHURCH:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
5 (5·75)
3·21
5 1·66
5 0·95
5 (0·31)
?-NO RETURN
0 Miles 60
0 Km 80

Figure 4.4

existing churches collegiate - with more than one minister - so that they could serve a larger area. A few additional burgh churches were also provided but, as Burleigh (1960, p.319) has noted, they were costly to construct and consequently high seat rents had to be charged which meant that the working-classes were dissuaded from attending. At the same time chapels-of-ease were provided by existing congregations and between 1799 and 1826 the Church recognised 27 of these (Burleigh, 1960, p.320). However, the provision made for rural areas was poor and in 1824 Parliament gave finance for 42 new 'parliamentary' parishes in the Highlands and Islands, of which two were in Orkney and two in Shetland, with the remainder in the Highlands.

By 1830 the Church of Scotland was still making little advance in both the expanding urban centres of the Lowlands and the more remote rural areas. A map of circa 1830 by Arrowsmith, shown in Figure 4.5, highlights the very poor provision in the Highlands and North with the exception of a few churches including the parliamentary parishes on the West coast, and the relatively low number of churches in the Central Lowlands when compared to other areas such as the East and North East of Scotland. At this time Chalmers, a Minister of the Church of Scotland, realised the need for greater efforts in church extension especially in the rapidly growing but poorly provided urban Lowlands. By 1834 Chalmers had persuaded the General Assembly of the Church of Scotland of the need for a massive effort in church extension and by the end of the decade 200 churches had been erected (Burleigh, 1960, p.321).

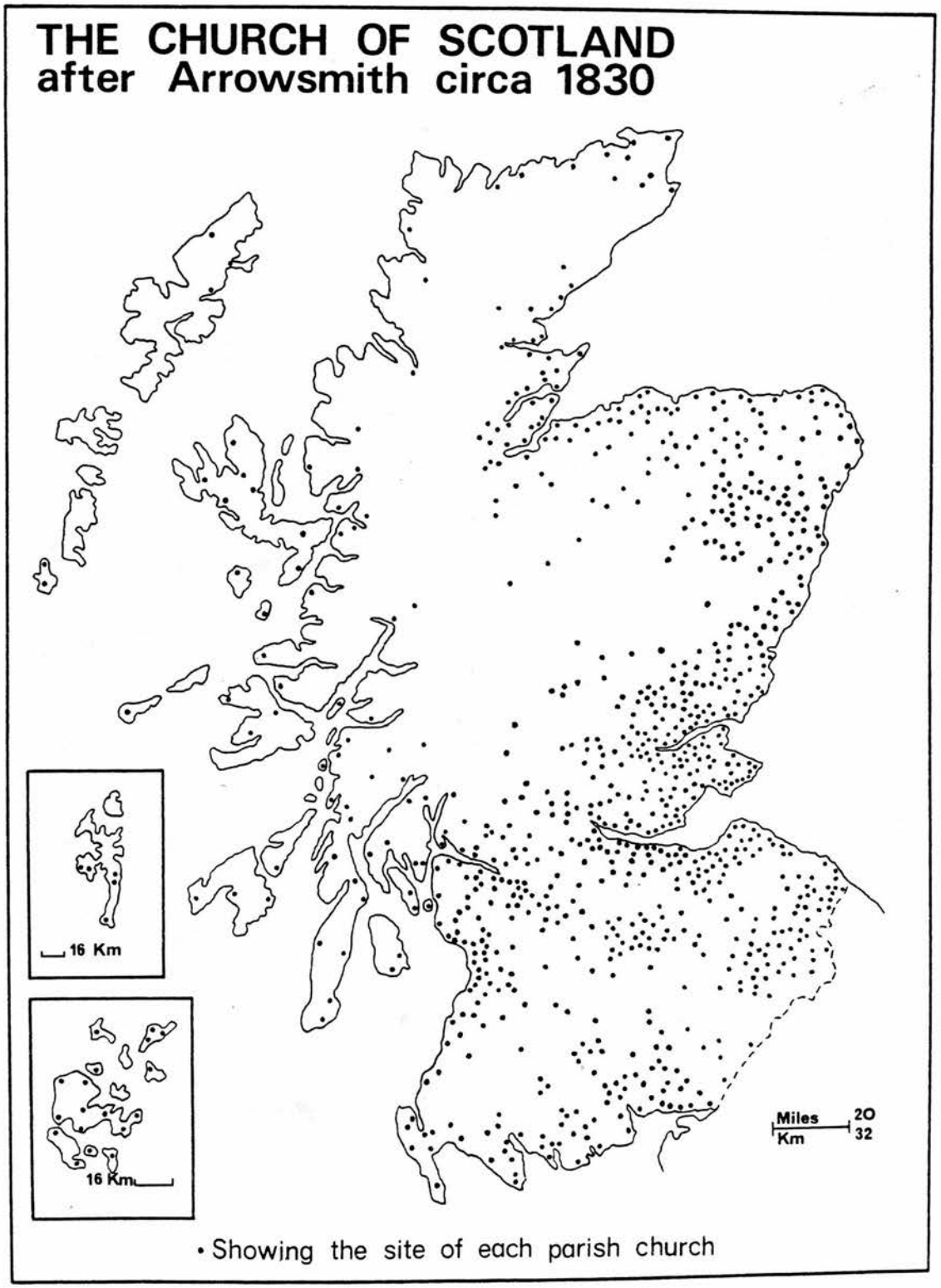

THE CHURCH OF SCOTLAND
after Arrowsmith circa 1830
16 Km
16 Km
Miles 20
Km 32
• Showing the site of each parish church

Figure 4.5

Chalmers' work was continued by another Minister of the Church of Scotland, Robertson, so that 60 parishes were added to the Church between 1846 and 1860 (Ibid., p.377). Robertson also saw the need for provision in the poorer parts of the cities and large towns.

The strength of the Church of Scotland in 1851 can be judged from the map based upon the Index of Attendance in Figure 4.6. As might be expected, the Church of Scotland had the highest proportion of total population in attendance of any denomination in some of the counties in which it was represented. However, its strength lay outside the Central Lowlands as it was relatively stronger in the North East and East, principally in the counties of Fife, Kinross and Perth. The relative lack of penetration into the Highlands and the South West is noticeable and this reflects the comparatively greater success of other denominations in these areas.

A special factor that must be taken into account when assessing the strength of the Church of Scotland is the effect of divisions from its body. We have already seen in section 4.2 that there were two secessions from the Established Church during the eighteenth century. Following various divisions and unions these secessions were by the middle of the nineteenth century represented by the United Presbyterian Church, the Original Secession Church and the Evangelical Union, as shown in Figure 4.7. Each of these Churches offered some competition to the Established Church but the greater competition was offered by the United Presbyterian

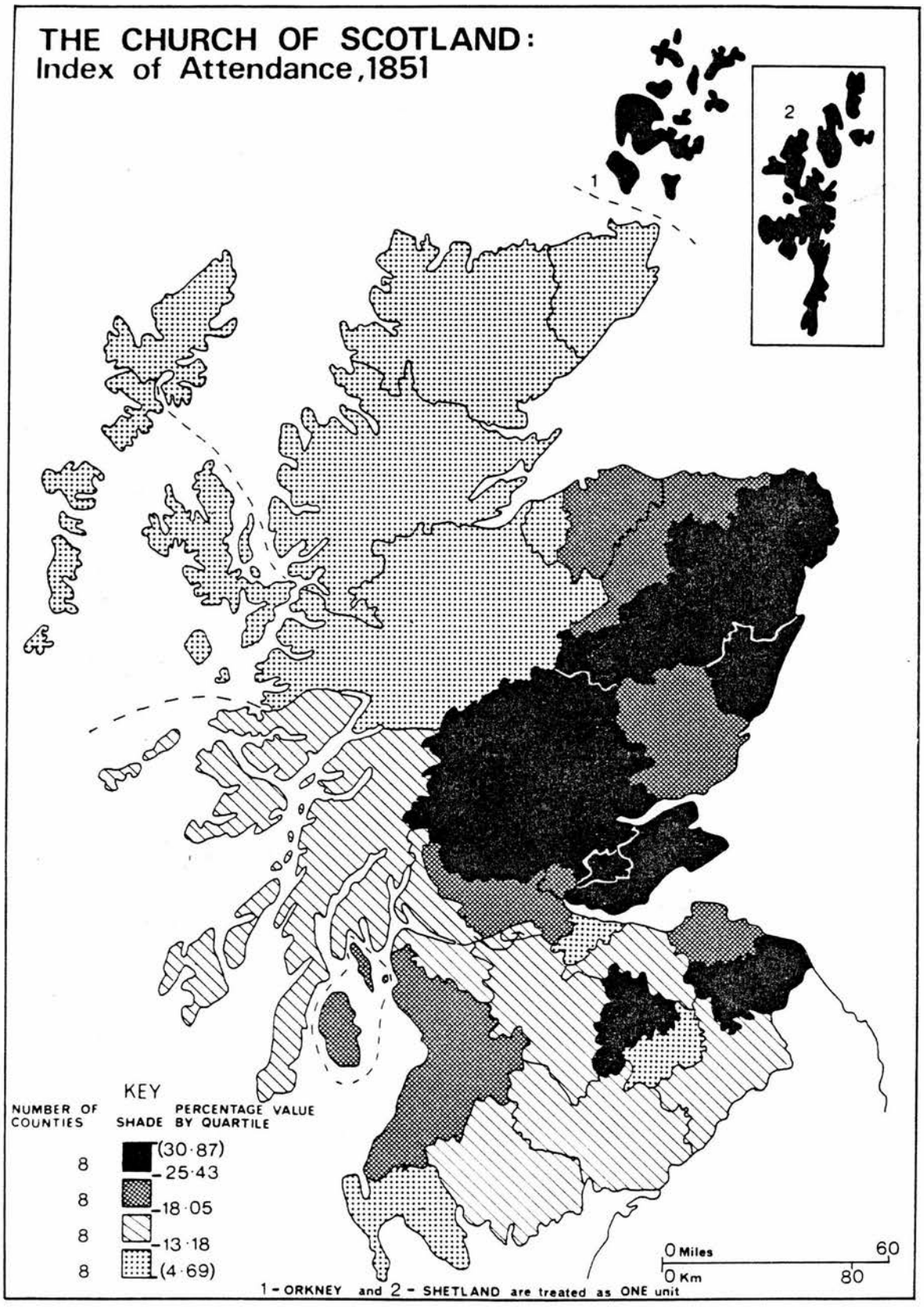

THE CHURCH OF SCOTLAND:
Index of Attendance, 1851
1
2
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
8
(30·87)
25·43
8
18·05
8
13·18
8
(4·69)
0 Miles
60
0 Km
80
1 - ORKNEY and 2 - SHETLAND are treated as ONE unit

Figure 4.6

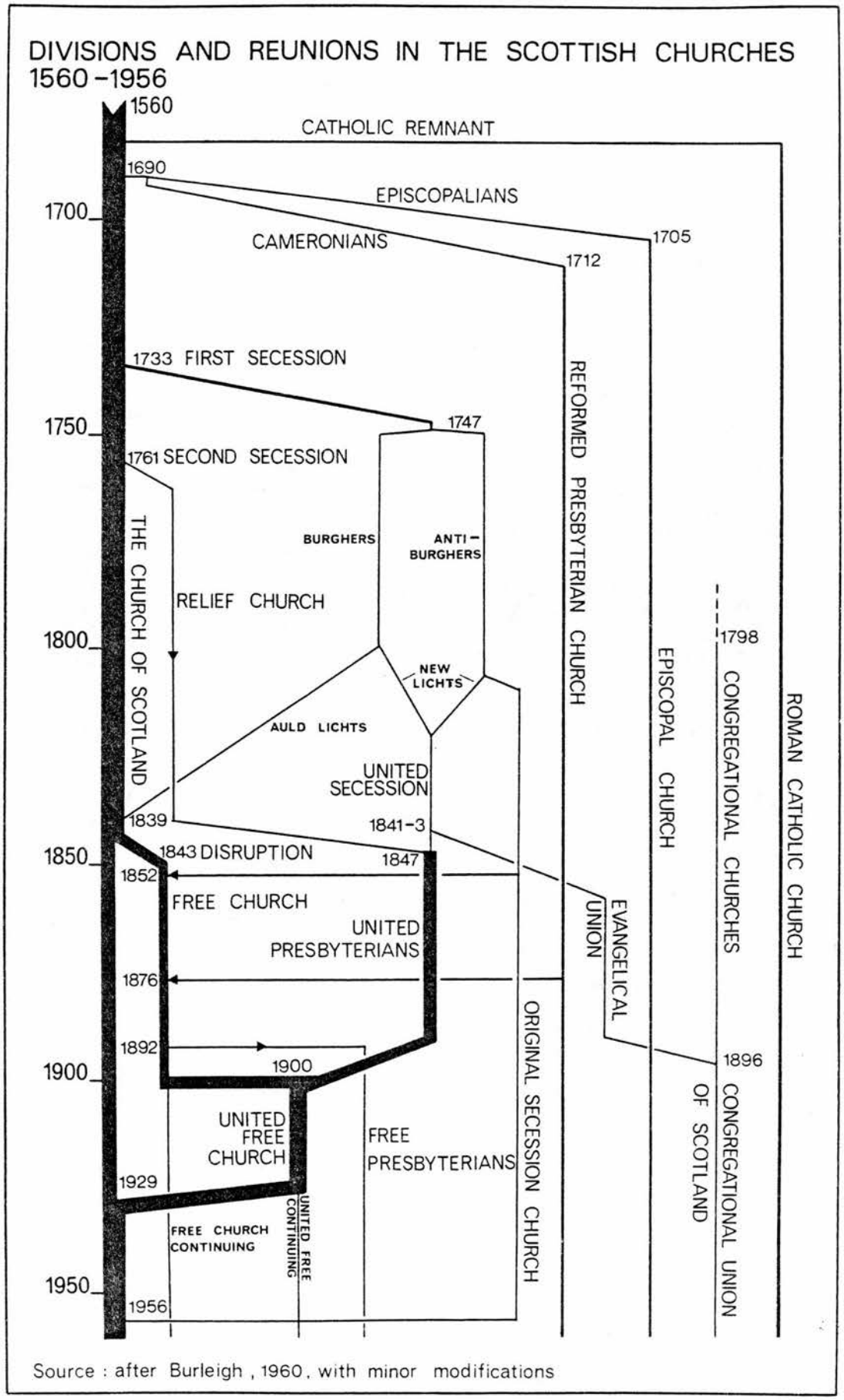

DIVISIONS AND REUNIONS IN THE SCOTTISH CHURCHES
1560 -1956
1560
CATHOLIC REMNANT
1690
EPISCOPALIANS
1700
CAMERONIANS
1705
1712
1733 FIRST SECESSION
1747
1750
1761 SECOND SECESSION
BURGHERS
ANTI-BURGHERS
THE CHURCH OF SCOTLAND
RELIEF CHURCH
1798
1800
NEW LICHTS
AULD LICHTS
UNITED SECESSION
1839
1841-3
1843 DISRUPTION
1847
1850
1852
FREE CHURCH
UNITED PRESBYTERIANS
1876
1892
1900
1896
1900
UNITED FREE CHURCH
FREE PRESBYTERIANS
1929
FREE CHURCH CONTINUING
UNITED FREE CONTINUING
1950
1956
REFORMED PRESBYTERIAN CHURCH
EVANGELICAL UNION
EPISCOPAL CHURCH
CONGREGATIONAL CHURCHES
CONGREGATIONAL UNION OF SCOTLAND
ORIGINAL SECESSION CHURCH
ROMAN CATHOLIC CHURCH
Source : after Burleigh , 1960, with minor modifications

Figure 4.7

Church which as shown in Table 4.5 was the third largest denomination in Scotland in terms of provision in 1851. Its areal distribution can be gauged from the map of the Index of Attendance taken from the results of the 1851 Census and shown in Figure 4.8. Prior to union, the strength of its various constituent bodies laid in the Lowlands and this can be seen to persist in Figure 4.8. The highest value was in Kinross. This Church was particularly strong in the rural areas and county towns of the Lowlands because it had depended from the time of its initiation upon the resources of the individual congregation and therefore churches were only sited in areas where there was the necessary demand and resources. The concurrence of the distribution of this Church with that of the Church of Scotland suggests that it was in competition with the Established Church.

The Original Secession Church and the Evangelical Union are both much smaller denominations as Table 4.5 demonstrates. In 1851 the distribution of the Original Secession Church as measured by the strength of its attendance, shown in Figure 4.9, lacked any distinctive pattern. This might be expected as it represented the continuing portion after two divisions away from the initial secession from the Church of Scotland. By contrast, the Evangelical Union though of similar size as an institution had a more distinctive distribution, as shown in Figure 4.10. It is mainly clustered around Central Scotland and most especially in the West Central Lowlands. Its greatest strength was in Ayrshire and Clackmannanshire. The strength of this denomination in the West reflects its origins in 1843 in Kilmarnock and the location of the remaining twelve parent churches, which were mainly located in the West Lowlands, and its

Table 4.5 - Total Number of Places of Worship by Denomination in 1851

| Religious Denomination | Places of Worship |
|---|---|
| Established Church | 1183 |
| Free Church | 889 |
| United Presbyterian Church | 465 |
| Independents or Congregationalists | 192 |
| Episcopal Church of Scotland | 134 |
| Baptists | 119 |
| Roman Catholic Church | 117 |
| Wesleyan Methodists | 82 |
| Reformed Presbyterian Church | 39 |
| Original Secession Church | 36 |
| Evangelical Union | 28 |
| Mormons | 20 |
| Society of Friends | 7 |
| Glassites | 6 |
| Unitarians | 5 |
| New Church | 5 |
| Catholic and Apostolic Church | 3 |
| Relief Church | 2 |
| Campbellites | 1 |
| Jews | 1 |
| United Brethren | 1 |
| Free Christian Brethren | 1 |
| Other Isolated Congregations | 59 |
| Total | 3395 |

Source : The Census of Great Britain, 1851 : Religious Worship and Education, Scotland, Report and Tables, Supplement II to Table A, p.5.

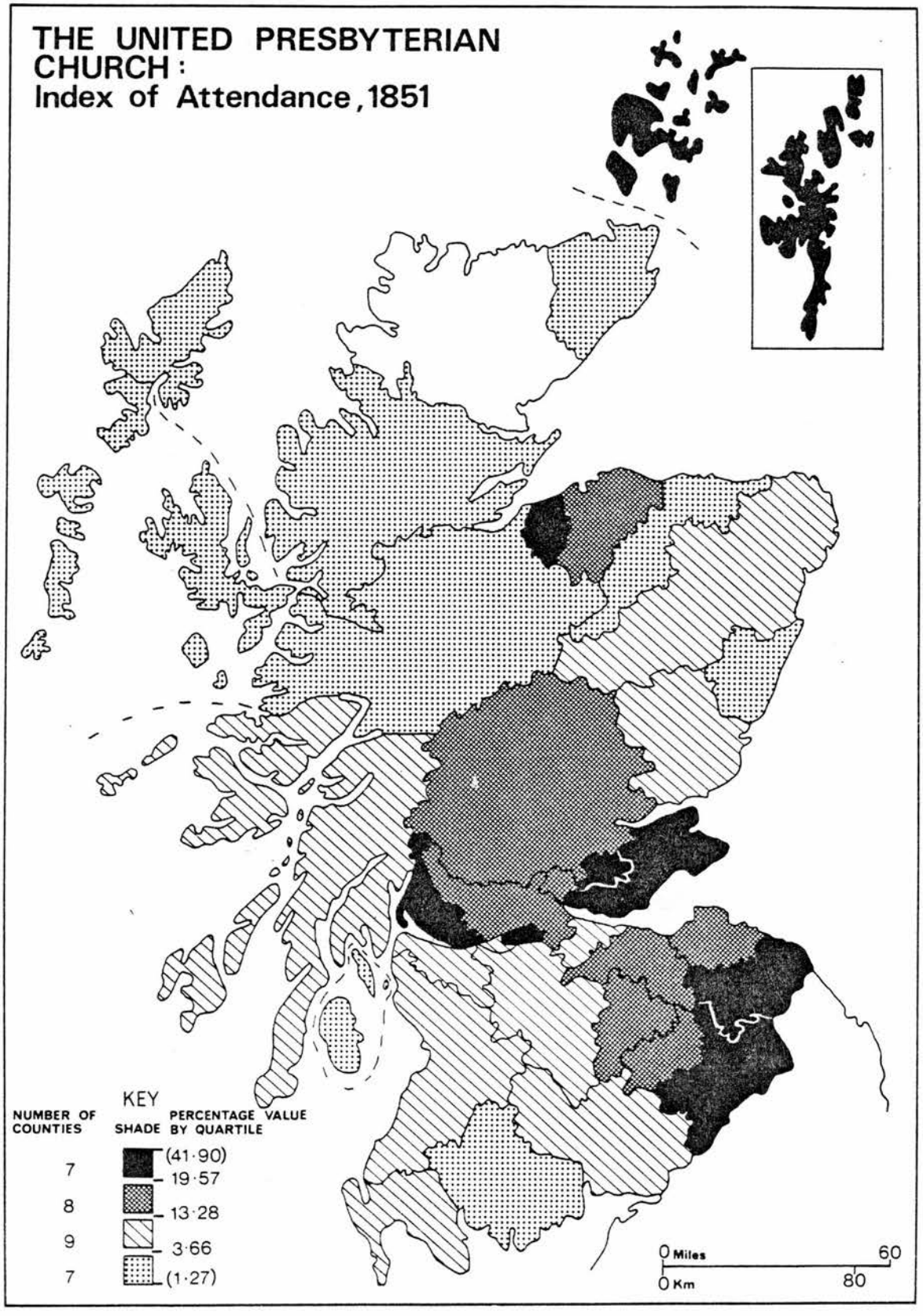

THE UNITED PRESBYTERIAN CHURCH:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
7
(41·90)
19·57
8
13·28
9
3·66
7
(1·27)
0 Miles
60
0 Km
80

Figure 4.8

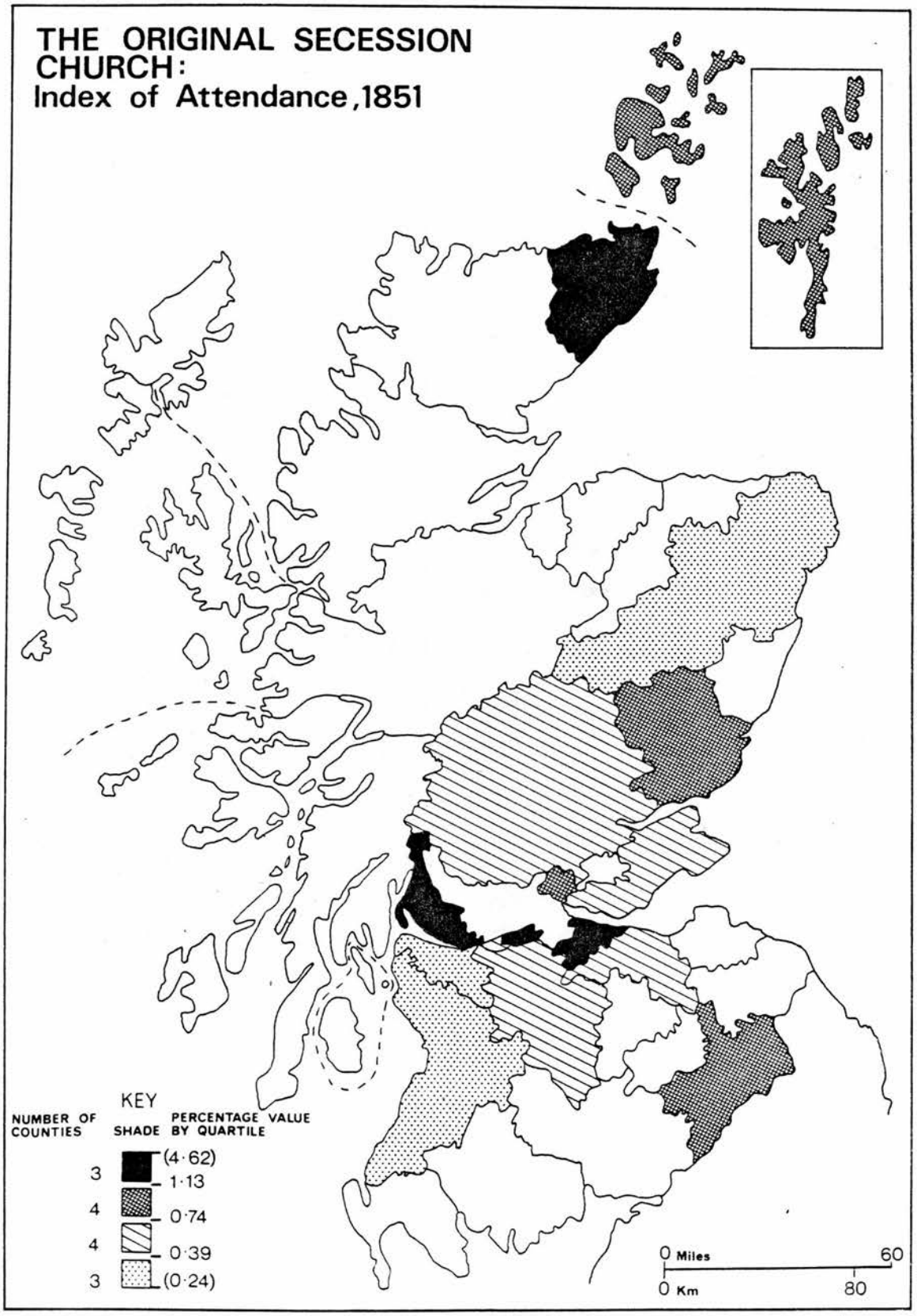

THE ORIGINAL SECESSION CHURCH:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
3
(4·62)
1·13
4
0·74
4
0·39
3
(0·24)
0 Miles
60
0 Km
80

Figure 4.9

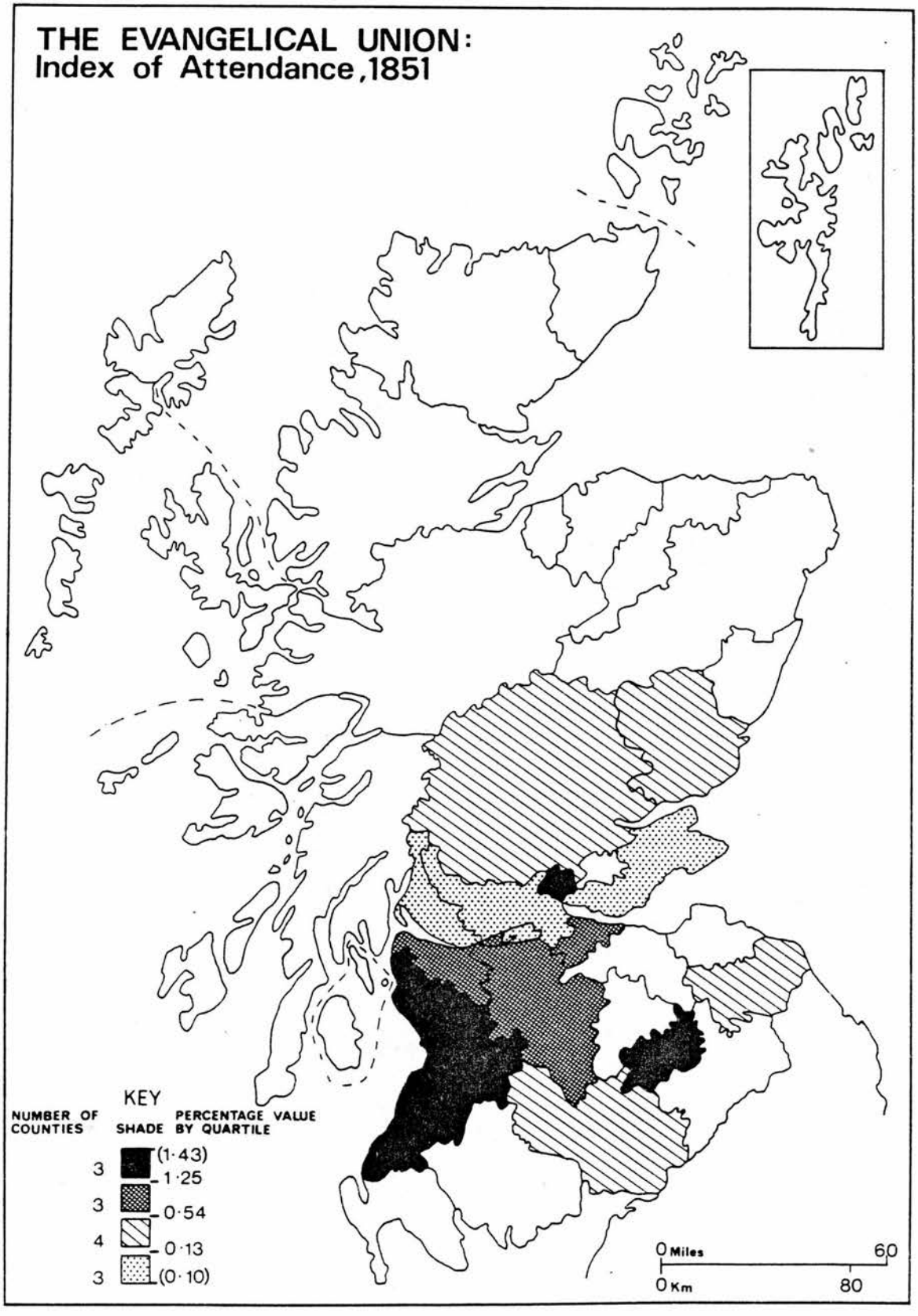

THE EVANGELICAL UNION:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
3
(1·43)
1·25
3
0·54
4
0·13
3
(0·10)
0 Miles
60
0 Km
80

Figure 4.10

subsequent rapid expansion to the large centres of population in the 1840s (Escott, 1960, pp.126-7).

The nineteenth century saw the major division of the Established Church in the form of the Disruption of 1843 in which a considerable body - 39 per cent of the ministers of the Church of Scotland and approximately 33 per cent of the members and about 50 quoad sacra parishes - left to form the Free Church of Scotland under the leadership of Chalmers. As a rival to the Church of Scotland it was committed to maintaining congregations in virtually every parish of Scotland. The situation was exacerbated by the practice of establishing the competing facility in the closest proximity to the parish church. Within one year 470 new churches were added to the stock of the Free Church while between 1846 and 1860 the Church of Scotland added only 60 quoad sacra parishes. By 1847 the Free Church had more than 700 churches and in 1851 (Table 4.5) it was the second largest religious institution in Scotland with 889 churches.

The distribution of the strength of the Free Church can be seen from Figure 4.11 which presents the results of the 1851 Census in terms of an Index of Attendance. The Free Church was strongest in the Highlands and the West and was also strong in the North East and the northern parts of the Central Lowlands. Notably, the Index of Attendance never fell below ten per cent in any county and this Church was represented in all counties in opposition to the Church of Scotland. The reason for its surpassing the Church of Scotland in the Highlands and the West was that the Free Church

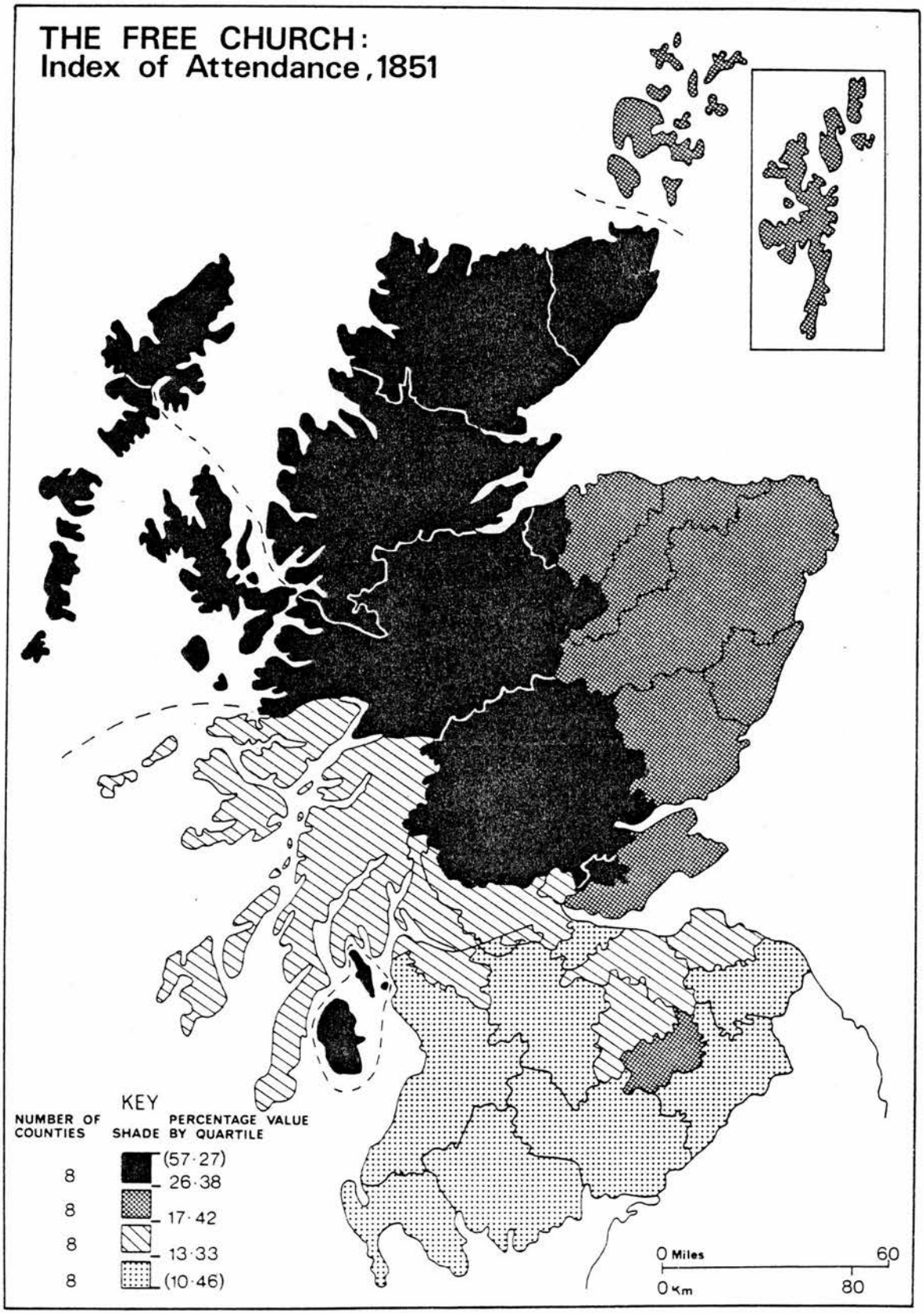

THE FREE CHURCH:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
8
(57·27)
26·38
8
17·42
8
13·33
8
(10·46)
0 Miles
60
0 Km
80

Figure 4.11

adopted those opportunities to expand most in those areas in which the Church of Scotland was failing to make provision - especially the Highlands and parts of the Lowlands. Rivalry between the Free Church and the Established Church was to continue throughout the nineteenth century such that the Church of Scotland was encouraged to add 500 new parishes to its stock between 1843 and 1929 (Fleming, 1933, p.164).

A denomination which represented a split from the Church of Scotland and still had an independent existence by the mid-nineteenth century was the Reformed Presbyterian Church. Like the Episcopal Church the Reformed Presbyterians formed a seperate movement away from the Church of Scotland at the end of the seventeenth century. Although the Reformed Presbyterian Church was relatively small in size (Table 4.5) it did have a notable concentration in the South West of Scotland. Figure 4.12 presents the result of the 1851 Census and shows that this Church was especially strong in the counties of Wigtown, Kirkcudbright and Dumfries. This concentration might be expected since it was an area that was under-represented by other Presbyterian Churches relative to their levels of provision elsewhere in the country.

(5) Other Denominations

As the Church of Scotland was slow in providing for the expanding urban areas, opportunities were presented for other denominations to serve these people. The Free Church took some advantage of this weakness after 1843 but in view of the high rates of population growth in the early nineteenth century the immediate

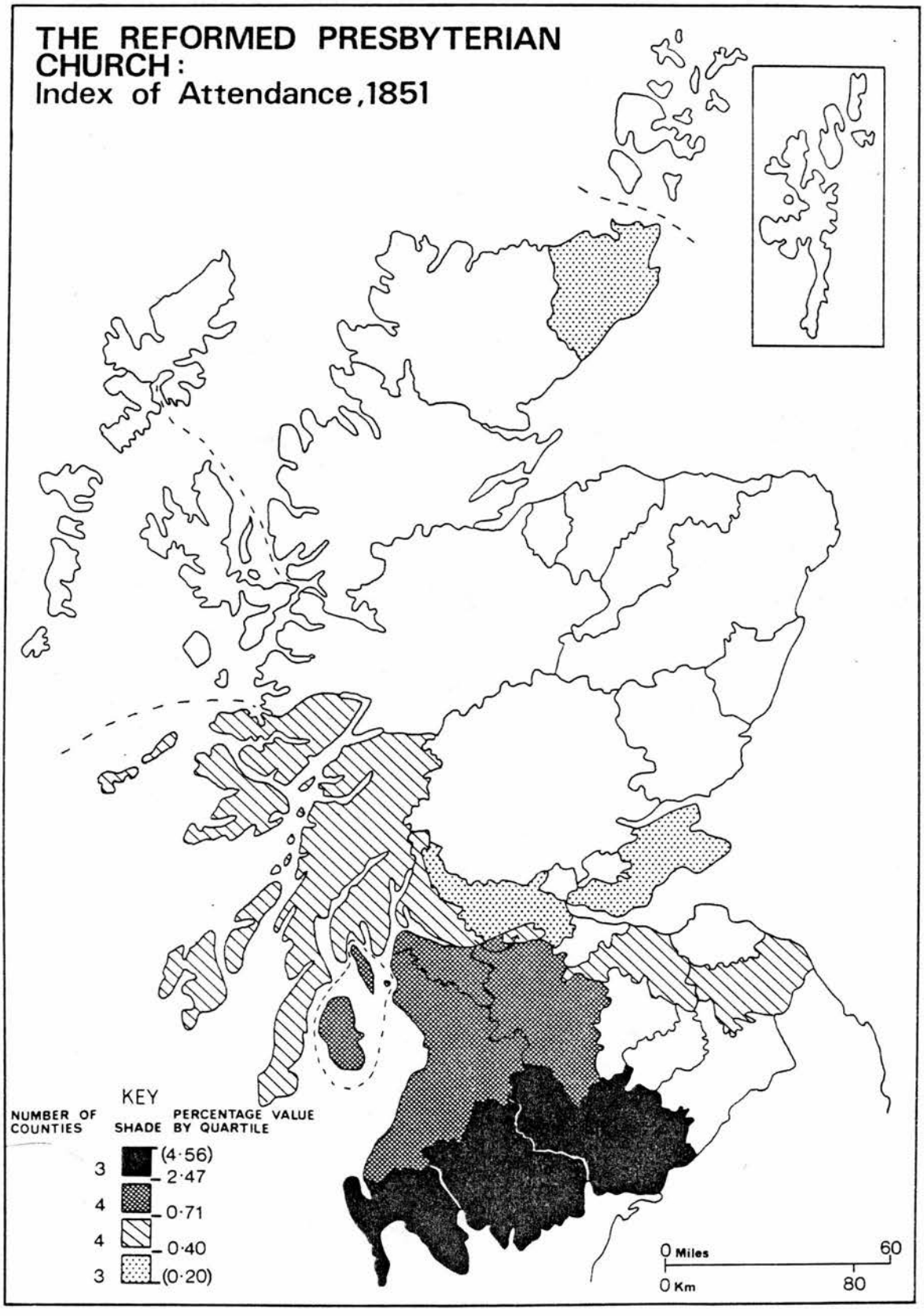

THE REFORMED PRESBYTERIAN CHURCH:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
3
(4·56)
2·47
4
0·71
4
0·40
3
(0·20)
0 Miles
60
0 Km
80

Figure 4.12

opportunity was that of denominations which were already in existence such as the Baptists, the Methodists and the Congregationalists. Each of these denominations was relatively strong in the Lowlands by the middle of the nineteenth century.

The Baptist Churches had only 400 members in 1795 (Yuille, 1926, p.65) and during the early part of the nineteenth century the Baptist Churches were widely scattered with small congregations and the growth of membership was slow. By 1844 the Baptist Churches had a combined membership of 5500 persons served by 90 places of worship of which only one-third had a membership in excess of 50 (Ibid., pp.59 and 65). By 1851 there were as many as 119 places of worship (Table 4.5). The map of the results of the 1851 Census, in Figure 4.13, shows low percentage values for the Index of Attendance which indicates a small total membership but within this picture the relative strength of this denomination in the Central Lowlands and the Highlands can be seen. The strength in the Highlands reflects the enthusiastic missionary work of the Baptist Churches which paid particular attention to this area. It was in the latter half of the nineteenth century, though, that the denomination was most active: 76 churches were established in these years (Ibid., pp.78 and 81) and the fastest rate of growth in membership was in the 1890s.

The Weslyan Methodists were of much the same size as a denomination - there were 82 places of worship in 1851 (Table 4.5) - but the distribution of its membership was different to that of the Baptist Churches in terms of strength. The Index of Attendance for the Weslyan Methodists in 1851 is shown by Figure 4.14. Although

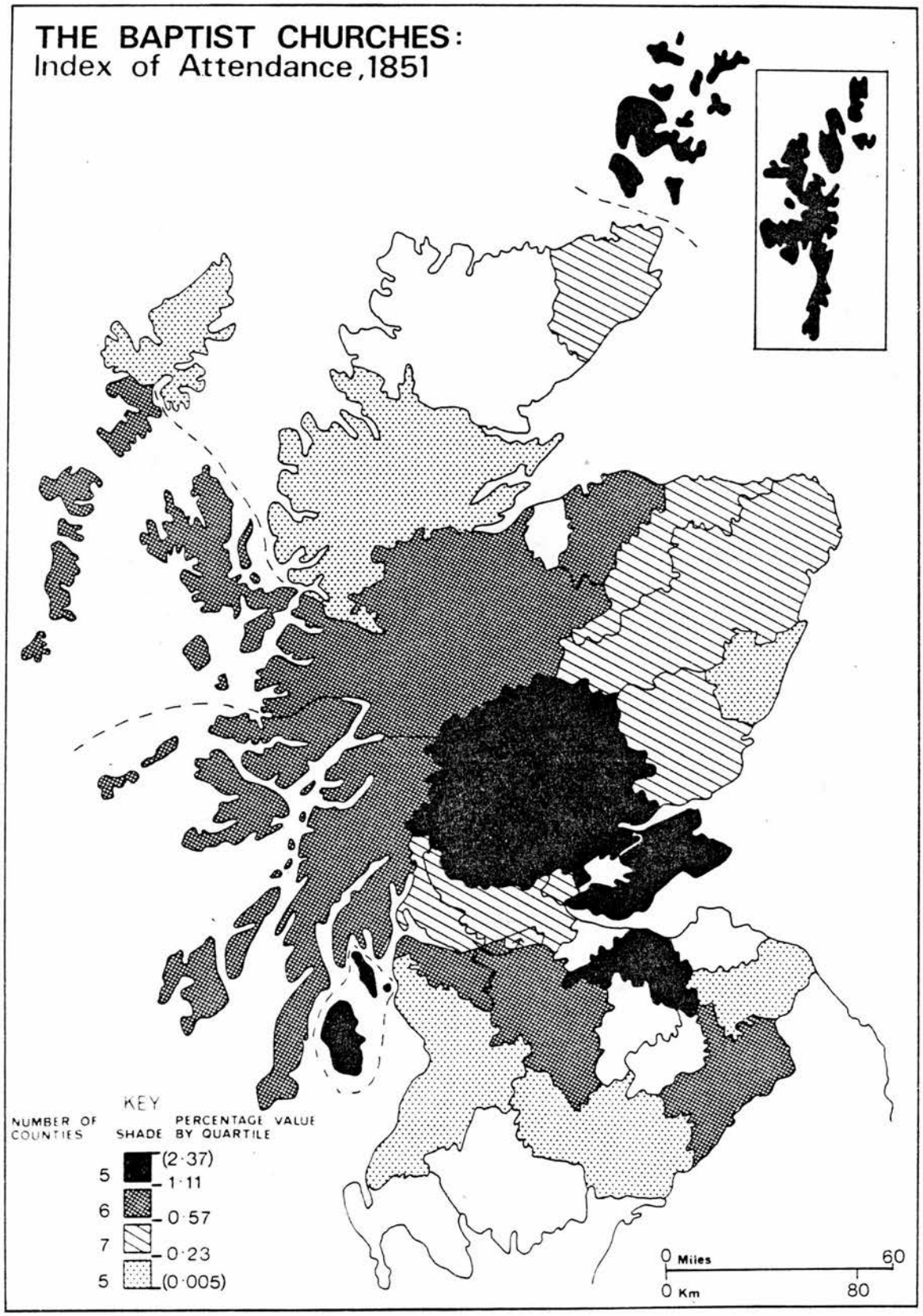

THE BAPTIST CHURCHES:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
5
(2·37)
1·11
6
0·57
7
0·23
5
(0·005)
0 Miles
60
0 Km
80

Figure 4.13

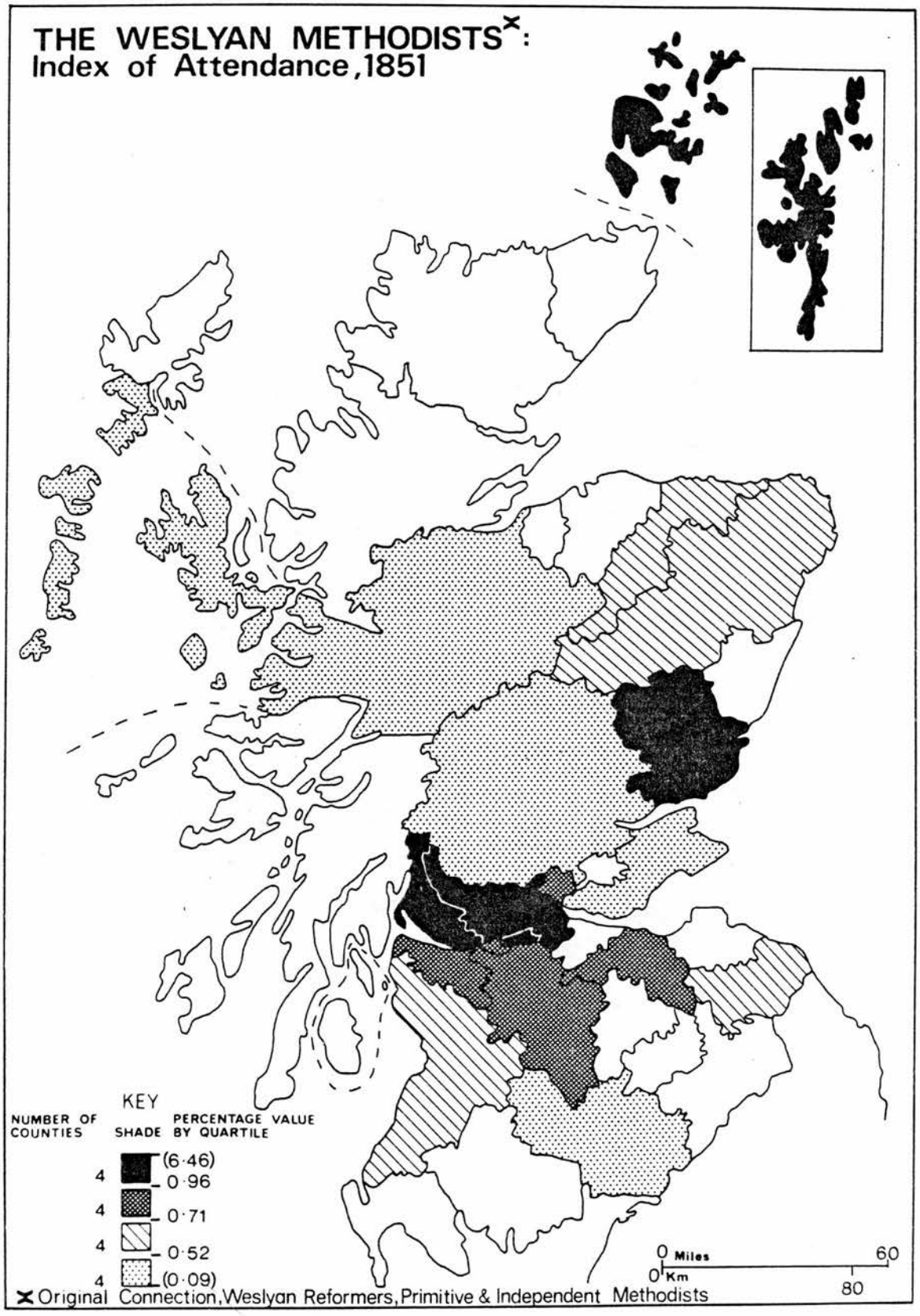

THE WESLYAN METHODISTS✕:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
4 (6·46) 0·96
4 0·71
4 0·52
4 (0·09)
0 Miles 60
0 Km 80
✕ Original Connection, Weslyan Reformers, Primitive & Independent Methodists

Figure 4.14

its presence was widespread, the strength of this denomination lay principally in the Central Lowlands. Its significant presence in Dunbarton, Stirling, Renfrew, Clackmannan, Lanark and Midlothian counties suggests that it was even more an urban denomination than the Baptists.

The largest of the three denominations was that formed by the Independent or Congregationalist Churches. Although initiated earlier the main development of this denomination began at the end of the eighteenth century. By 1851 the denomination accounted for 192 places of worship (Table 4.5). Figure 4.15, which gives the Index of Attendance, shows that this denomination tended to complement the pattern of the Baptist Churches. The larger percentage values occur in the extreme North, in Caithness and in Orkney and Shetland, while the denomination is weak in the West Highlands. At the end of the nineteenth century the Congregationalist Churches joined with the Evangelical Union to form the Congregational Union of Scotland so giving a greater representation in the West Lowlands.

By contrast to these three denominations, another older Church, the Quakers (or Society of Friends), was very small indeed at the middle of the nineteenth century. In 1851 it had only seven places of worship (Table 4.5) and was an urban Church with a presence in Aberdeen, Midlothian and Lanark counties and places of worship in the cities of Glasgow, Edinburgh and Aberdeen.

The nineteenth century also witnessed the growth of new imported denominations. Notable amongst these were the Mormons

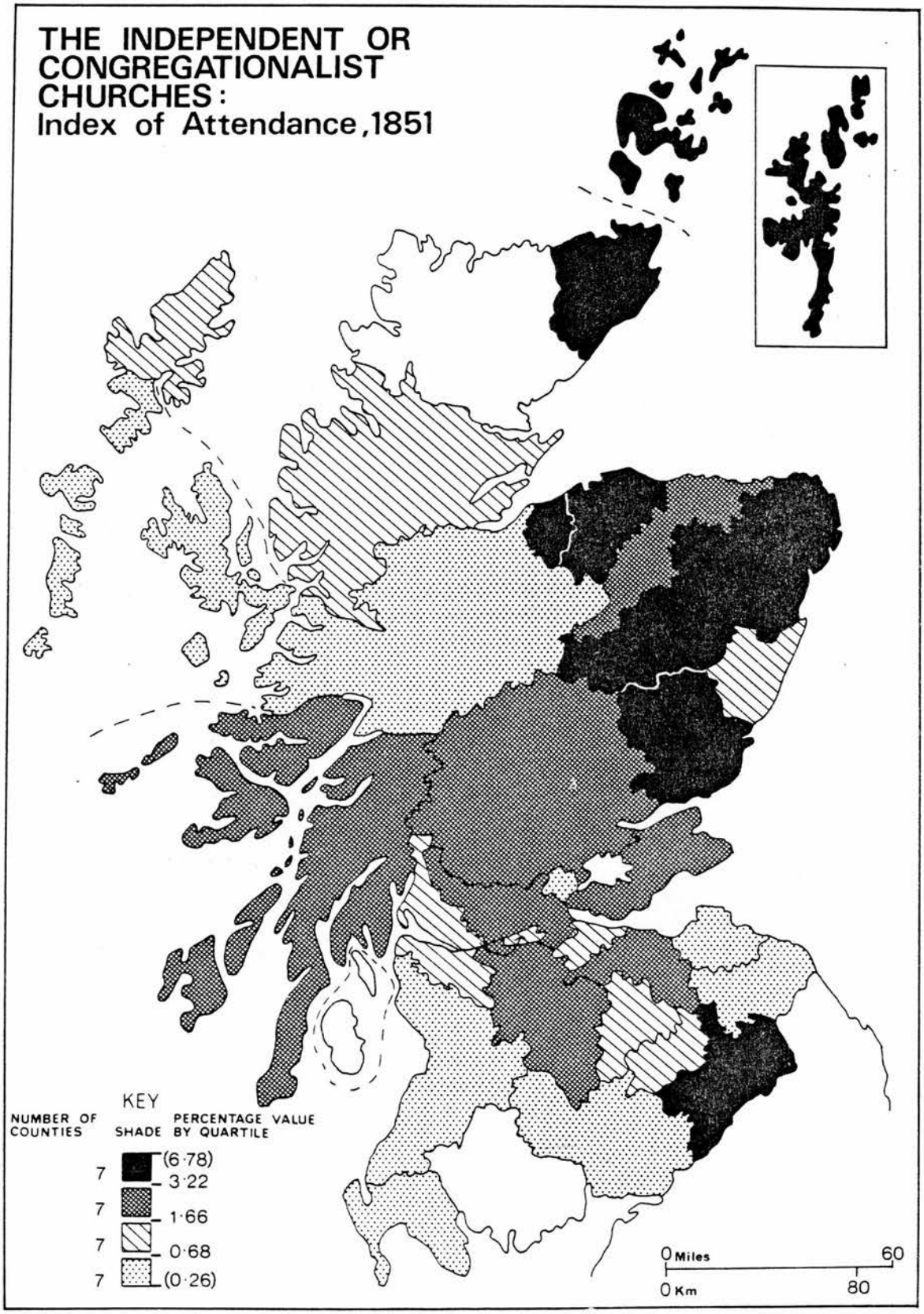

THE INDEPENDENT OR CONGREGATIONALIST CHURCHES: Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
7 (6·78)
3·22
7 1·66
7 0·68
7 (0·26)
0 Miles 60
0 Km 80

Figure 4.15

(the Church of Jesus Christ of the Latter Day Saints). By 1851 the denomination had 20 places of worship and, as Figure 4.16 shows, the highest Indices of Attendance were in the Lowlands, especially in the West. Drummond (1975, p.112) considers that this distribution was a result of their gaining an early footing in industrial urban areas associated with the mining areas of the Lothians and the calico-printing districts around Glasgow in which the Mormons recognised the weakness of the Established Church.

In conclusion, the regionality of the older Scottish denominations was confirmed and strengthened during the nineteenth century. Further division of the Established Church created a new level of provision for the Highlands and to some extent for the urban Lowlands. The Catholic Church developed a dual regionality as a result of the attraction of large numbers of Irish-born imigrants to urban industrial employment. As the Established Church not only failed to provide adequate church accommodation in the Highlands but also in the Lowlands there was an opportunity for younger denominations, either native or imported, to establish support. In this way the diversity of denominations became greatest in urban areas where population was growing fastest and where the need for provision was apparent.

## 4.4 THE TWENTIETH CENTURY

As population change slowed in the twentieth century, the regionality which had been developed in the previous centuries was largely preserved and Scottish religion inherited a diverse composition.

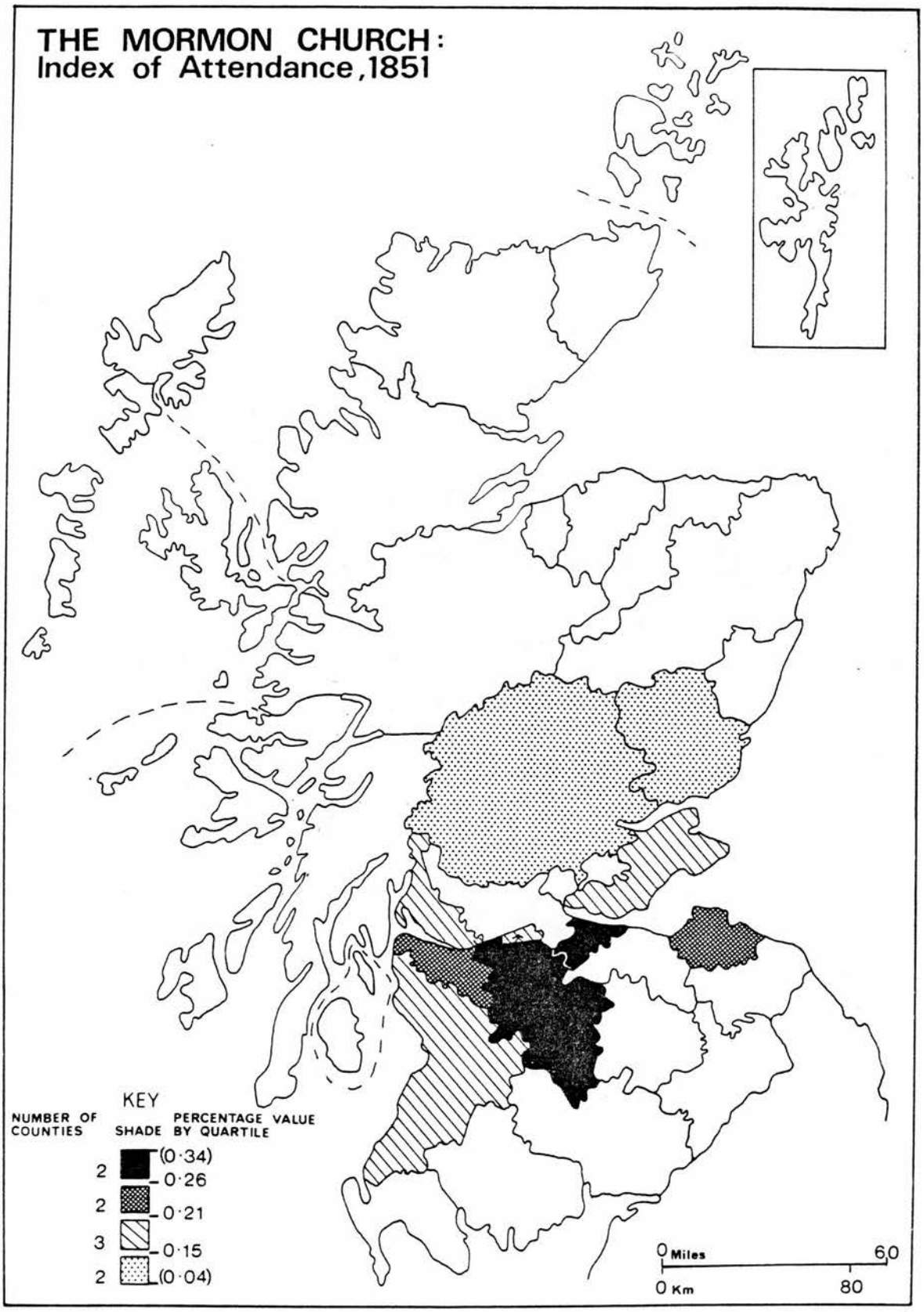

THE MORMON CHURCH:
Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE BY QUARTILE
2
(0·34)
0·26
2
0·21
3
0·15
2
(0·04)
0 Miles
6,0
0 Km
80

Figure 4.16

(1) Population Change

As population growth decreased in the twentieth century so too did the rate of increase of urban population, with the exception of Glasgow between 1911 and 1920. By the inter-war decades the rates of increase were small and of far greater importance was the redistribution of population. An indication of the nature of redistribution is given by the following table:

TABLE 4.6 THE DISTRIBUTION OF SCOTLAND'S POPULATION IN THE TWENTIETH CENTURY.

| Region | Percentage Share | | |
|---|---|---|---|
| | 1901 | 1951 | 1971 |
| Crofting Counties* | 7.9 | 5.6 | 5.4 |
| North East* | 10.3 | 9.1 | 8.6 |
| Angus and Perth | 9.1 | 7.9 | 7.8 |
| Fife and Kinross | 5.1 | 6.2 | 6.4 |
| Stirling and Clackmannan | 3.9 | 4.4 | 4.9 |
| West Lothian, Midlothian and East Lothian | 13.3 | 13.8 | 14.5 |
| Dunbarton, Lanark and Renfrew | 38.5 | 41.3 | 40.6 |
| Ayr and Bute | 6.1 | 6.7 | 7.2 |
| Dumfries, Kirkcudbright and Wigtown | 3.2 | 2.9 | 2.7 |
| Berwick, Peebles, Roxburgh and Selkirk | 2.6 | 2.1 | 1.9 |
| Total Population in Scotland | 4472103 | 5096415 | 5228963 |

Source: 1971 Census, Scotland, Population Tables, Table 2, p.1.

* As in Table 4.2

Even this table, however, does not make apparent the size of the redistribution of urban population. Between 1919 and 1939 about one and a half million people were rehoused in the outer parts, or outside, of the cities in new housing schemes. The redistribution continued into the post-World War Two period with the decentralisation of population, especially in Glasgow. As these population changes were mainly modifications of the existing patterns of settlement, the regionality that had been developed in the preceeding centuries was altered only at the margins and was therefore largely preserved.

During the twentieth century immigration from Ireland slowed with a small peak in the 1950s. By contrast immigration from England increased as did immigration from Asian countries. The effects of immigration in the twentieth century can be judged from the following table:

TABLE 4.7 THE COUNTRY OF BIRTH OF RESIDENT SCOTTISH POPULATION, AS A PERCENTAGE.

| Country | 1901 | 1951 | 1971 |
|---|---|---|---|
| Scotland | 91.4 | 92.1 | 91.1 |
| England and Wales | 3.0 | 4.6 | 5.6 |
| Ireland | 4.6 | 1.7 | 1.3 |
| Empire/Commonwealth | 0.3 | 0.6 | 0.8 |
| Other Foreign Countries | 0.7 | 1.0 | 1.0 |
| Not Stated | 0.0 | 0.0 | 0.2 |

Source: 1901 and 1951 - Census 1951 Scotland, Volume II, General Volume, Table 38, p.60.

1971 - Census 1971 Scotland, Population Tables, Table 23, p.112.

(2) Denominational Changes

Several new denominations have been established in Scotland during the twentieth century: for example, the Seventh Day Adventists Church which is of North American origin established itself in Scotland in 1902, and the Elim Foursquare Gospel Alliance which is of Irish origin settled in 1927. Further developments have been the appearance of Asian Churches especially in Glasgow.

The main feature of the twentieth century for the Presbyterian Churches has been the union in 1900 of the majority of the Free Church and all of the United Presbyterian Church to form the United Free Church. In 1929 the majority of this recently constituted Church joined with the Church of Scotland having followed a policy of co-operation in the provision of facilities during the early twentieth century. The result of this Union in 1929 was that four-fifths of the church-going Protestant population of Scotland were drawn together. This gave the Church of Scotland an even greater degree of coverage of Scottish territory though the continuing portions of the denominations retained the regionality that had been developed in the nineteenth century. With the union came a new policy of church extension to accommodate new housing areas by establishing new churches or moving existing facilities from areas where they were no longer required. Similarly, the union also led to a policy of rationalisation because the intense competition of the nineteenth century had given the united Church a legacy of duplication. Both policies have been essentially those of adjustment at the margins and so have not removed regionality.

## 4.5 TEMPORAL CHANGES IN CHURCH MEMBERSHIP

Having considered the development of the regionality and diversity of Scottish religion, it is apposite to examine the temporal change in church membership. But, as the preceeding sections have shown, the availability of data on membership and practice is limited prior to the middle of the nineteenth century and those data that do exist are so diverse in their nature that it is practicable to glean them only from a variety of denominational histories. Fortunately, from the later decades of the nineteenth century it was customary for the larger denominations to publish statistics of membership and these form the basis of the following analyses. By contrast, attendance data remain scarce.

The 1851 Census is a major source of information on practice, and data that have been presented previously for individual denominations are combined into an overall Index of Attendance which is shown in Figure 4.17. Low levels of attendance are apparent in the Central Lowlands - in the counties of Stirling, Linlithgow, Lanark, Renfrew and Ayr - as well as in the counties of the South West. The 1851 Census also gives figures for burghs and the Index of Attendance has been calculated from these and shown in Table 4.9. It is apparent from this table that there is a wide range in the proportion of the population attending church but again the lower values occur in the Lowlands, with most of the third quartile and virtually all of the fourth comprising Lowland burghs.

By the last quarter of the nineteenth century strong concern was being expressed about the numbers of persons who were

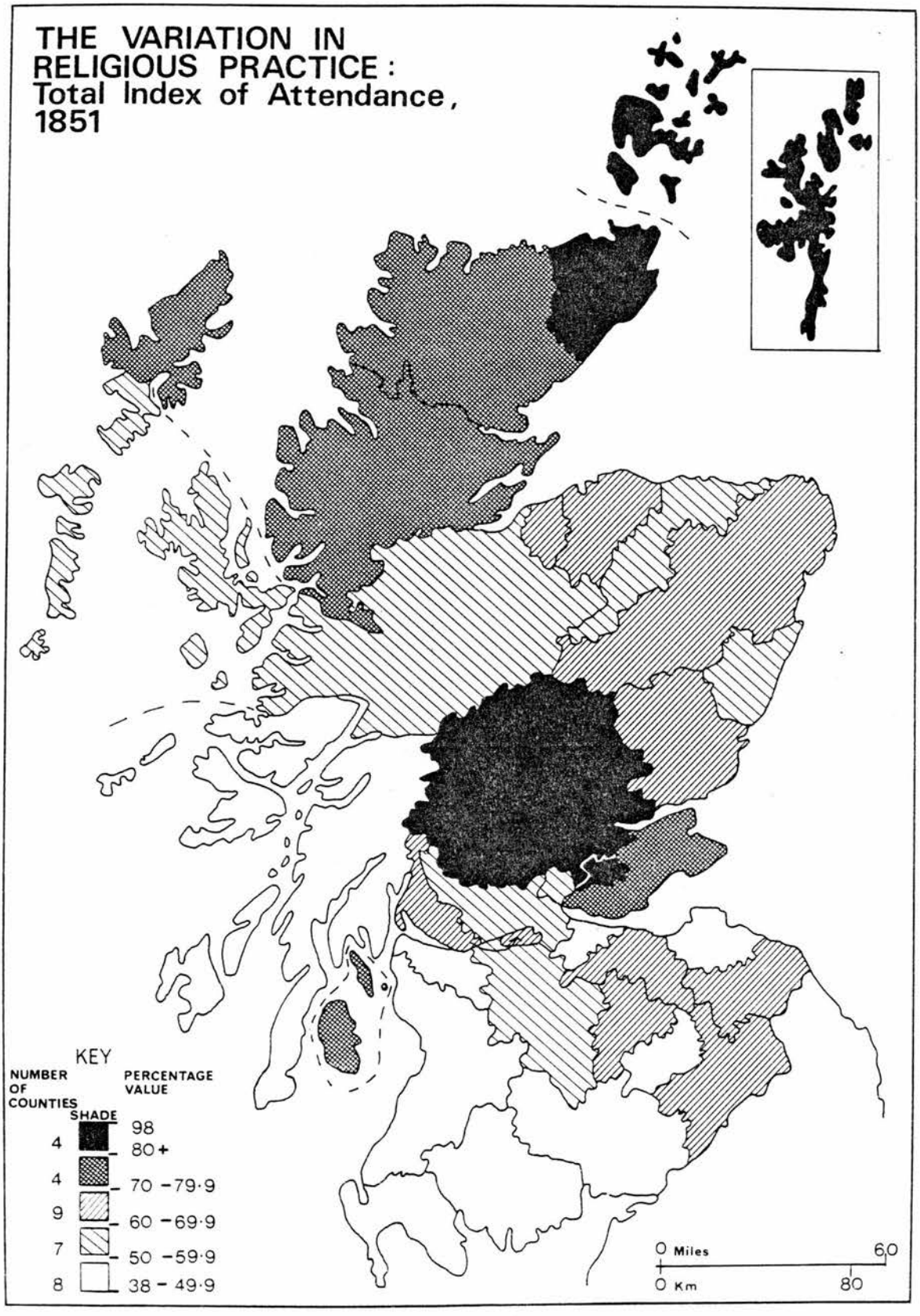

THE VARIATION IN RELIGIOUS PRACTICE: Total Index of Attendance, 1851
KEY
NUMBER OF COUNTIES
SHADE
PERCENTAGE VALUE
4 98
80+
4 70 -79·9
9 60 -69·9
7 50 -59·9
8 38 - 49·9
0 Miles 60
0 Km 80

Figure 4.17

outwith the ministrations of the Church. Johnston (1874, pp.28-9) estimated that between 500,000 and 600,000 persons, of all ages, were outside the Church at the beginning of the 1870s and noted that:

> . . . this class is on the increase in all our mining and manufacturing centres of industry. Even in the rural districts there is a growing neglect of the ordinances of religion . . . But it is to the rapidly increasing population in industrial centres that the energies of the Church must first be directed.
>
> (Ibid., p.31).

Howie noted that attendance had fallen in the latter half of the nineteenth century in the following Presbyterian Churches:

TABLE 4.8 RATES OF ATTENDANCE PER THOUSAND MEMBERS AT THE BEST ATTENDED DIET OF WORSHIP IN THE LATE NINETEENTH CENTURY.

| Church | 1876 | 1881 | 1891 |
|---|---|---|---|
| Church of Scotland | 730 | 575 | 420 |
| Free Church | 996 | 830 | 702 |
| United Presbyterian Church | 855 | 773 | 639 |

Source: Howie, 1893, Table XXXVI, p.118.

The fall in attendance rates and the increase in the numbers outside the Church could measure the growing secularism of society. However, it can be argued also that as the membership of many

Table 4.9 - The Burghs of Scotland Ranked by their Index of Attendance According to the 1851 Census

| First Quartile (13) | | Third Quartile (14) | |
|---|---|---|---|
| Burgh | Value | Burgh | Value |
| Dingwall | 189.0 | Dumbarton | 71.4 |
| Perth | 134.0 | Inverness | 70.8 |
| Kirkwall | 126.7 | Musselburgh | 69.9 |
| Tain | 119.7 | Aberdeen | 69.6 |
| Brechin | 113.2 | Kirkcaldy | 67.1 |
| Peebles | 112.3 | Greenock | 66.7 |
| Cupar | 104.5 | Renfrew | 62.4 |
| Stranraer | 103.8 | Hamilton | 61.7 |
| St. Andrews | 102.7 | Edinburgh & Leith | 60.7 |
| Haddington | 101.0 | Dunfermline | 60.6 |
| Wick | 98.8 | Dundee | 59.4 |
| Irvine | 96.8 | Selkirk | 59.3 |
| Forres | 93.5 | Port Glasgow | 57.9 |
| | | Forfar | 56.8 |
| **Second Quartile (13)** | | **Fourth Quartile (13)** | |
| Burgh | Value | Burgh | Value |
| Nairn | 90.3 | Lanark | 55.8 |
| Rothesay | 88.9 | Paisley | 54.1 |
| Stirling | 88.3 | Kirkcudbright | 53.3 |
| Burntisland | 87.3 | Arbroath | 52.6 |
| Montrose | 86.4 | Ayr | 51.7 |
| Campbeltown | 84.6 | Dumfries | 46.5 |
| Elgin | 84.5 | Glasgow | 46.5 |
| Jedburgh | 83.3 | Falkirk | 40.0 |
| Peterhead | 81.0 | Rutherglen | 37.0 |
| Dysart | 80.9 | Wigtown | 31.3 |
| Banff | 76.7 | Linlithgow | 29.0 |
| Annan | 73.7 | Girvan | 28.1 |
| Kilmarnock | 72.1 | Airdrie | 25.3 |

Source : The Census of Great Britain, 1851 : Religious Worship and Education, Scotland, Report and Tables, Table C, pp. 23 - 33.

denominations was increasing so the numbers outside the Church that Johnston noted would not represent a long-term loss to the existing church population as secularisation would suggest, but rather a lack of provision for a rapidly growing population in the centres of its growth.

Some support for this contention may be given by the 1851 Census which provides data on the amount of church accommodation or sittings. The proportion of the population that is provided for, in counties and in burghs, by the sittings of all denominations is shown in Table 4.10. A great range in provision is apparent and it appears that the Lowland counties and burghs tend to have the lower levels of provision. Opinions as to the level of provision that was necessary to satisfy the adult demand for the ministrations of the Church obviously varied but some indication may be given by the estimate of H. Mann - the assistant to the Registrar-General - that accommodation for '58 per cent of the population is sufficient for all practical purposes' (The Census of Great Britain, 1851: Religious Worship and Education, Scotland, Report and Tables, p.ix). On the basis of this measure, one-third of the burghs and one-quarter of the counties of Scotland fell below the necessary level of provision in 1851. There were low levels in the Lowlands and particularly in the burghs of Dundee, Edinburgh and Glasgow. Cleland (1831, pp.72-3) noted that the number of sittings provided by all denominations in Glasgow had become progressively deficient during the early nineteenth century.

These figures, however, conceal the possibility of spatial variation within these aggregate units such that the levels of

Table 4.10 - The Proportion of Sittings to Population in the Counties and Burghs of Scotland, 1851, in Descending Order

| County [1] | Percentage | Burgh [2] | Percentage | Burgh | Percentage |
|---|---|---|---|---|---|
| Bute | 101.56 | Stranraer | 129.82 | Wigtown | 57.72 |
| Peebles | 92.11 | Dingwall | 111.11 | Montrose | 57.56 |
| Kinross | 91.52 | Peebles | 105.27 | Annan | 56.67 |
| Perth | 90.97 | Irvine | 105.08 | Campbeltown | 56.13 |
| Orkney and Shetland | 84.22 | Haddington | 101.16 | Rutherglen | 55.32 |
| Kincardine | 80.94 | Cupar | 98.73 | Dunfermline | 52.65 |
| Berwick | 80.64 | Kirkwall | 92.48 | Girvan | 50.30 |
| Elgin | 78.77 | Stirling | 92.07 | Falkirk | 50.07 |
| Roxburgh | 78.04 | Rothesay | 87.83 | Hamilton | 50.06 |
| Dunbarton | 76.11 | Kirkcudbright | 84.50 | Edinburgh & Leith | 48.55 |
| Sutherland | 75.75 | Jedburgh | 83.35 | | |
| Aberdeen | 73.55 | Forres | 83.26 | Ayr | 47.55 |
| Fife | 72.81 | Musselburgh | 79.86 | Dundee | 46.54 |
| Caithness | 71.67 | Brechin | 79.78 | Linlithgow | 42.19 |
| Ross & Cromarty | 70.90 | Dysart | 78.29 | Arbroath | 41.28 |
| Dumfries | 69.77 | Perth | 76.63 | Renfrew | 40.74 |
| Banff | 69.30 | Elgin | 71.41 | Airdrie | 38.20 |
| Kirkcudbright | 67.60 | Peterhead | 70.98 | Glasgow | 36.65 |
| Stirling | 66.55 | Burntisland | 70.49 | Forfar | 36.61 |
| Inverness | 64.59 | Nairn | 70.46 | | |
| Nairn | 62.13 | Banff | 70.27 | | |
| Argyll | 61.05 | Dumfries | 69.21 | | |
| Haddington | 60.81 | Lanark | 69.19 | | |
| Wigtown | 60.72 | St. Andrews | 65.65 | | |
| Selkirk | 57.99 | Kirkcaldy | 65.62 | | |
| Renfrew | 57.73 | Kilmarnock | 65.27 | | |
| Forfar | 57.51 | Tain | 65.06 | | |
| Edinburgh | 57.22 | Inverness | 64.90 | | |
| Ayr | 56.97 | Paisley | 64.34 | | |
| Clackmannan | 55.32 | Wick | 63.18 | | |
| Linlithgow | 52.83 | Selkirk | 62.26 | | |
| Lanark | 44.14 | Aberdeen | 61.77 | | |
| | | Port Glasgow | 59.86 | | |
| | | Dumbarton | 59.59 | | |
| | | Greenock | 58.80 | | |

Source: The Census of Great Britain, 1851 : Religious Worship and Education, Scotland, Report and Tables

1 - Table B, p. 6, and Supplement I to Tables A and B, p. 4

provision may even have been less in certain areas. Some assistance in understanding the nature of this spatial variation might be offered by the evidence of the 1835 Inquiry into Religious Provision which dealt with the accommodation of all denominations in parishes of the Established Church that were alleged to have a deficiency in accommodation. Over one-tenth of the parishes that were investigated were in Glasgow and Edinburgh though it must be noted that other cases of deficiency were widely spread through Scotland into rural areas. Clearly, this is a subject that could repay detailed inquiry but it is too complex for the purposes required here. By the middle of the nineteenth century, though, Tables 4.9 and 4.10 show that rural counties and burghs tended to be over-provided and this was a situation that became even worse through the late nineteenth century (Howie, 1893, pp. xxx-xxxi).

During the twentieth century the non-church-going population increased in size. In 1926, the Scottish Churches Council estimated that 36 per cent of the adult population of Scotland, or 1,100,000 persons were not going to church (Escott, 1960, p.205). This is much greater than Johnston's figure for all age groups for 1874 which represented 16 per cent of the total population. By 1947, Highet (1950, p.76) estimated that non-church members represented 44 per cent of the adult population, and while this figure fell slightly to 41 per cent in 1959 (Idem, 1960, p.59) it has since risen again. In this way, church membership can be seen to have declined in the long-term as a proportion of population in the twentieth century. This suggests that secularisation is now an appropriate concept.

By examining the series of individual denominations we may obtain a more accurate picture than is given by an aggregate statistic for all denominations in Scotland. The series for the Church of Scotland in shown in Figure 4.18 and it represents the annual change in membership of that Church with gains occurring above, and losses occurring below, the horizontal line. The series is interrupted in 1929 because of the Union and begins in 1882 as continuing data are available only from this decade. At the close of the nineteenth century the trend of change in the membership of this denomination was roughly static. By the early twentieth century irregularities in membership change were becoming more frequent and larger. Disregarding the interruptions of the Union and the two World Wards, the peak gain was in the mid-1950s and membership of the Church of Scotland has since adopted an even greater trend to loss. The similar types of series are shown for the Baptist Union and the Episcopal Church in Figure 4.19, parts (a) and (b). The series for the Baptist Union begins in 1871 and shows the predominance of gain in the late nineteenth century which was followed by more frequent losses in the twentieth century. After 1949 losses became larger apart from a small peak in the mid-1950s. The series of the Episcopal Church, which begins in 1884, shows the predominance of gains to communicant membership during the late nineteenth century and the early twentieth century. By the inter-war decades the gains were small and in the post-World War Two period, especially after 1960, losses became predominant. It is problematical, though, to attempt a comparison by examining the series of Roman Catholic membership as the only recorded statistics are for Catholic 'population' which includes all age groups and

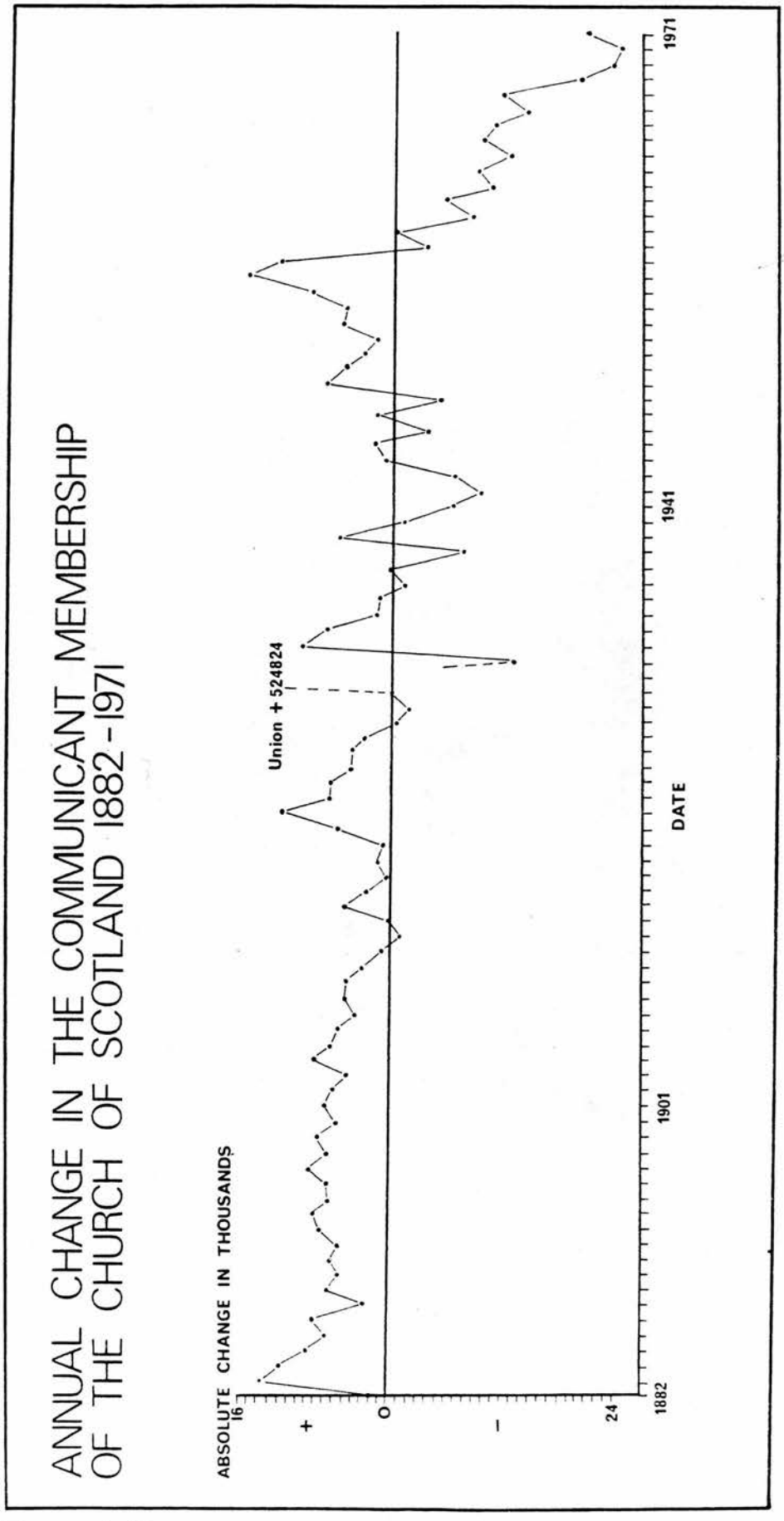
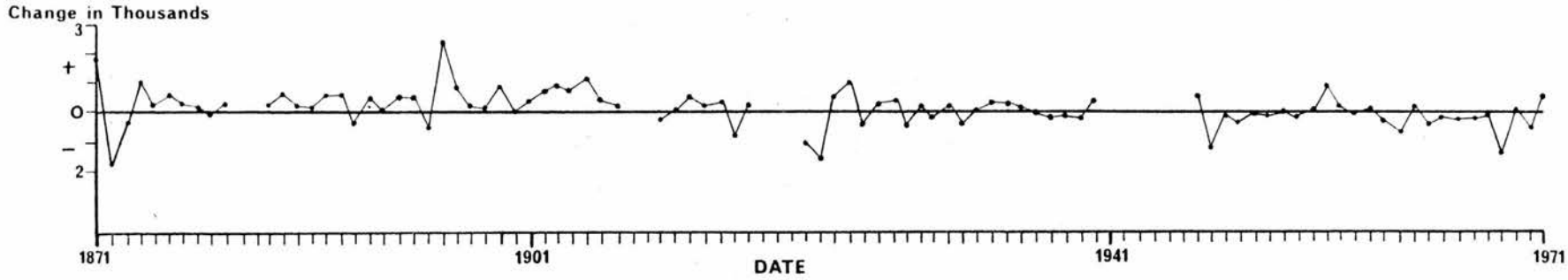

ANNUAL CHANGE IN THE COMMUNICANT MEMBERSHIP
OF THE CHURCH OF SCOTLAND 1882-1971
ABSOLUTE CHANGE IN THOUSANDS
16
+
0
-
24
Union + 524824
1882
1901
1941
1971
DATE

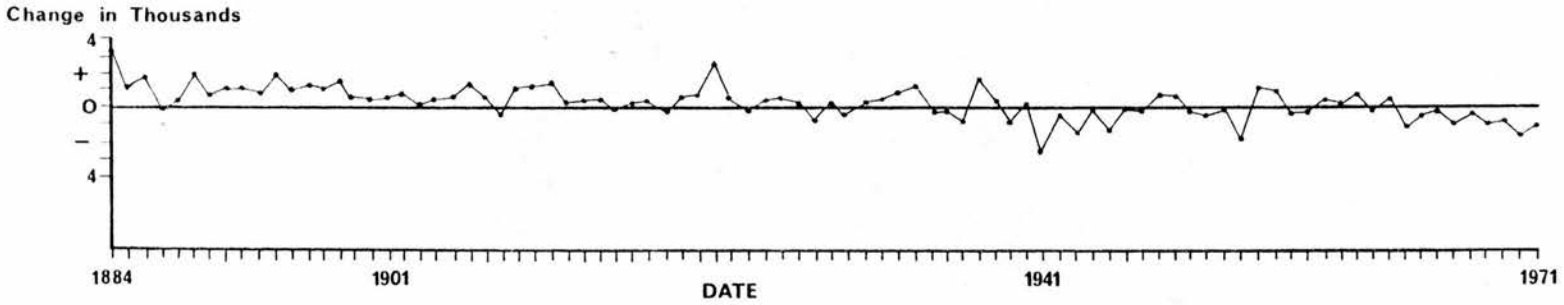
Figure 4.18

Figure 4.19

(a) ANNUAL CHANGE IN MEMBERSHIP OF THE BAPTIST UNION 1871-1971



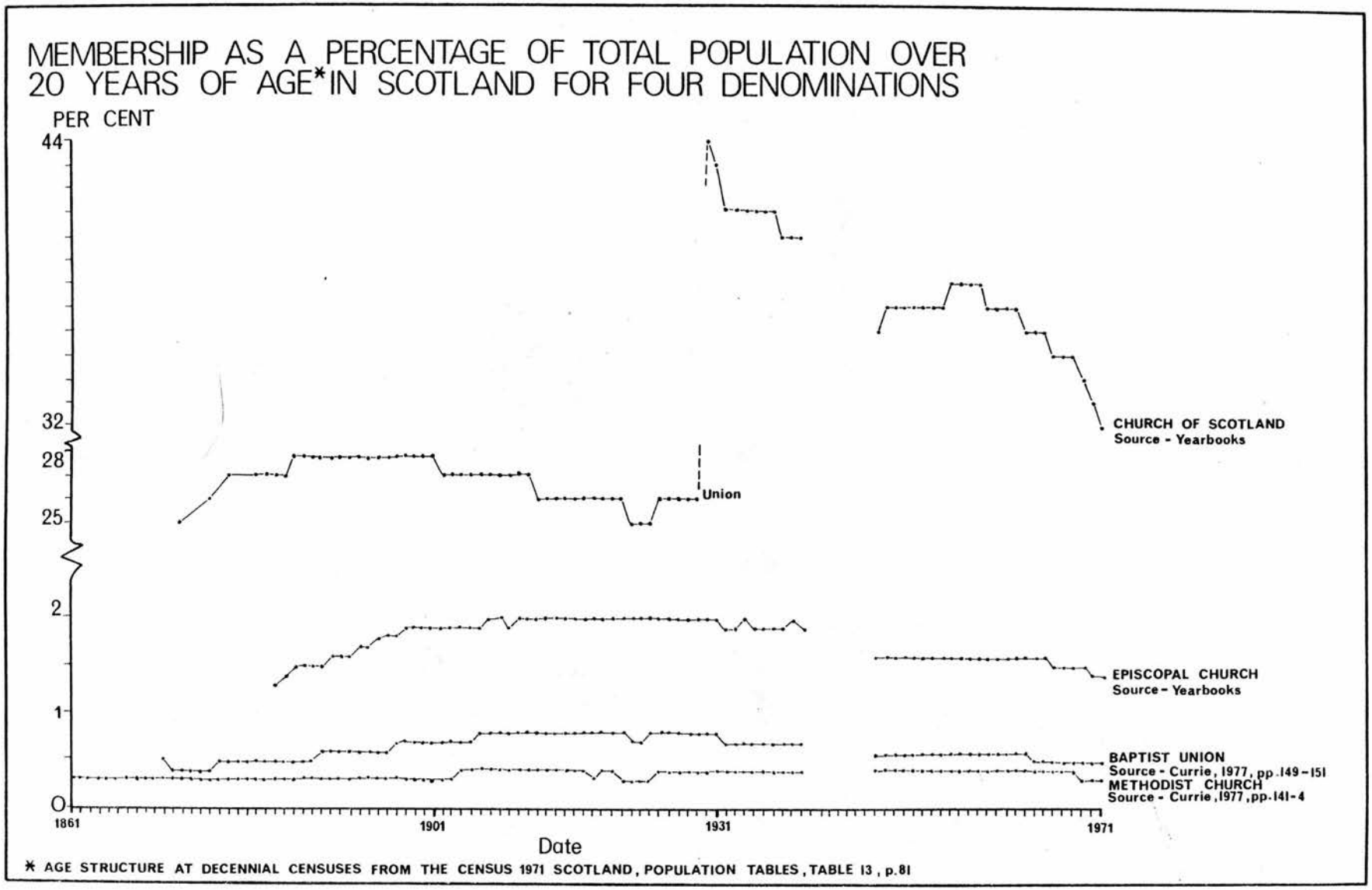

(b) ANNUAL CHANGE IN THE COMMUNICANT MEMBERSHIP OF THE EPISCOPAL CHURCH 1884-1971



non-practising as well as practising Catholics. As a result little indication is offered of any decline in practice or of real losses to the Church. By taking the figures of Catholic population it can be seen that the Catholic Church was growing during the late nineteenth century and the twentieth century until 1966, but a conclusive decision as to the real losses to the Catholic Church awaits further investigation in Chapter VI.

The trends in denominational membership are more meaningful when they are seen as a proportion of the adult population and so the series for the Church of Scotland, the Episcopal Church, the Baptist Union and the Methodist Church are expressed in this fashion in Figure 4.20. The membership of the Church of Scotland can be seen to be increasing as a proportion of adult population up to 1885 and then to level out at the close of the nineteenth century. Only in the twentieth century does the membership of this denomination decrease as a proportion of adult population. The series is disrupted by the Union of 1929 but the membership proportion resumes a downward trend afterwards. Even the peak of 1956 is seen to be relatively small and is followed by steep decline. In the Episcopal Church, decline began at a later date, in the 1930s, but the Church made no appreciable gains in strength in the early twentieth century. In the post-World War Two period the ratio was notably lower and gave way to decline. Similarly, the membership of the Baptist Union and the Methodist Church had entered a period of stagnation or small decline in the inter-war decades which was replaced by lower ratios of membership to adult population in the post-World War Two period. Like the Church of Scotland, both the Episcopal Church and the Baptist Union experienced gains in membership as a proportion of adult population in the late nineteenth century.

Figure 4.20


MEMBERSHIP AS A PERCENTAGE OF TOTAL POPULATION OVER 20 YEARS OF AGE* IN SCOTLAND FOR FOUR DENOMINATIONS
PER CENT
44
32
28
25
2
1
0
1861
1901
1931
1971
Date
Union
CHURCH OF SCOTLAND
Source - Yearbooks
EPISCOPAL CHURCH
Source - Yearbooks
BAPTIST UNION
Source - Currie, 1977, pp. 149-151
METHODIST CHURCH
Source - Currie, 1977, pp. 141-4
* AGE STRUCTURE AT DECENNIAL CENSUSES FROM THE CENSUS 1971 SCOTLAND, POPULATION TABLES, TABLE 13, p.81

The available data for the late nineteenth century have shown that although there was evidence of alienation from the Church demand was still increasing both in absolute terms and as a proportion of adult population. In the twentieth century, by contrast, we have observed a decrease in the numbers of church members which represents a real loss in terms of proportion of the adult population. The concept of secularisation may, therefore, be appropriate to account for the trend in church-going during the twentieth century.

## 4.6 CONCLUSIONS

The role of events in creating the diversity of Scottish denominations and in establishing their relative status has been elaborated and the influence of external religious movements in creating greater diversity has also been noted. The distinct regionality of Scottish religion has been traced and found to stem from the time of the Reformation. The role of population growth and historical events in confirming the regionality of these and later denominations in the nineteenth century has been described. The ability of younger denominations to take advantage of the weaknesses of the Established Church in certain rural areas and in the urban centres of population growth has been shown to be of special importance in developing their distinct regionalities. During the twentieth century the decentralisation of urban population and rural population decline have helped to modify patterns that were established earlier, but only on the margins so that regionality persists into the present-day, as will be discussed in Chapter VI.

The regionality of the Church of Scotland was blurred by the Union of four-fifths of the Protestant population of Scotland in 1929 which confirmed it even more as the national Church, though the continuing fragments have retained the regionality of their former larger organisations.

The temporal change in church membership has mainly been one of increase for all denominations in the nineteenth century. In the twentieth century, with various timing and degree, there has been decline. Since the decline during the twentieth century represents a decrease as a proportion of adult population the concept of secularisation is more appropriate to this period. The problem posed to the Church in the nineteenth century was one of meeting the growing demand and of preventing alienation while in the twentieth century it has become one of adjusting to decrease in membership, especially in the post-World War Two period. It is these post-War years which have special significance for the Church in Scotland and following chapters will investigate this period in greater depth in search of causes and implications.

# CHAPTER V

# AN ANALYSIS OF THE TIME SERIES OF CHURCH MEMBERSHIP FOR THE PERIOD 1951 - 71

# CHAPTER V

## AN ANALYSIS OF THE TIME SERIES OF CHURCH MEMBERSHIP FOR THE PERIOD 1951 - 71

The particular significance of these years in forming the major period of decline in the demand for the ministrations of the Church in Scotland has been identified in the previous chapter. This decline is important not only in itself but also because of the implications which it has for the provision made by the Church for its users. Three interrelated aims can therefore be identified for the study of this period. First, to describe the nature of change in the post-War years in greater detail. Second, to explain the pattern of change and, in seeking an explanation, to make continuing reference to the possibilities for refining the concept of secularisation. Third, to assess institutional reaction to the changes in demand.

Although it might be advantageous to examine the change in demand within a unified framework of time and space, the data which are available require that two separate approaches be adopted. The first is a time series analysis using those aggregate data which are recorded annually and the second is a spatial analysis using the disaggregated data which are recorded infrequently. This chapter presents the results of the first approach while the spatial analysis follows in Chapter VI. After examining the nature of change in

demand in these two chapters the institutional reaction will be assessed in Chapter VII.

## 5.1 METHODOLOGY

In the post-War period most denominations, with the exception of a few which are small in size, for example the Church of the Nazarene, have experienced a decline in membership. No single explanation appears to be possible because of the variety in timing and magnitude of these changes. So while the concept of secularisation may encompass the tendency for departure from church membership, it does not account for its variety. The aim of the analyses in this chapter is to formulate hypotheses which might explain changes in church membership and to examine the strength of evidence in favour of these hypotheses. The hypotheses will be assessed by measuring the degree to which variation in regressor time series explains the variation in the time series of church membership. Multiple regression methods are used, with some allowance for features peculiar to time series, to assess the hypotheses. Any relationships that achieve high levels of statistical explanation will be regarded as evidence supporting the initial hypotheses. Regressor variables will be chosen in accordance with the requirements of the hypotheses framed and the availability of data from secondary sources.

In the light of these requirements it is necessary to examine in detail the nature of the individual series. The first step in the analysis is to examine the response variable (church

membership) and the next is to formulate several hypotheses to explain the observed changes. Subsequently a range of regressor variables which may be used for testing the hypotheses are examined. There are clearly many denominations which could be analysed but it is the largest, the Church of Scotland, that provides the greatest scope for examining the components of change in church membership. The analyses of these components will, in conjunction with the series of total membership of this denomination, provide a framework for the formulation of hypotheses. Unfortunately, the scope for this type of examination is not universal, and so the assessment of other denominations is less detailed.

## 5.2 THE RESPONSE VARIABLE

The overall trend in the membership of the Church of Scotland compared to a selection of other denominations between 1950 and 1974 is illustrated in Figure 5.1. The numerical peak in 1956 is apparent as is the decline since that date. This trend would in itself be sufficient for a time series analysis but, in this case, it is possible to gain further insight into the trend of membership by examining the components that are represented graphically in Figure 5.2. The negative, or loss, components are deaths and removals with or without certificate. The positive, or gain, components are the numbers of admissions by profession of faith, by certificate and by resolution. The relationships between these components is represented schematically in Figure 5.3.

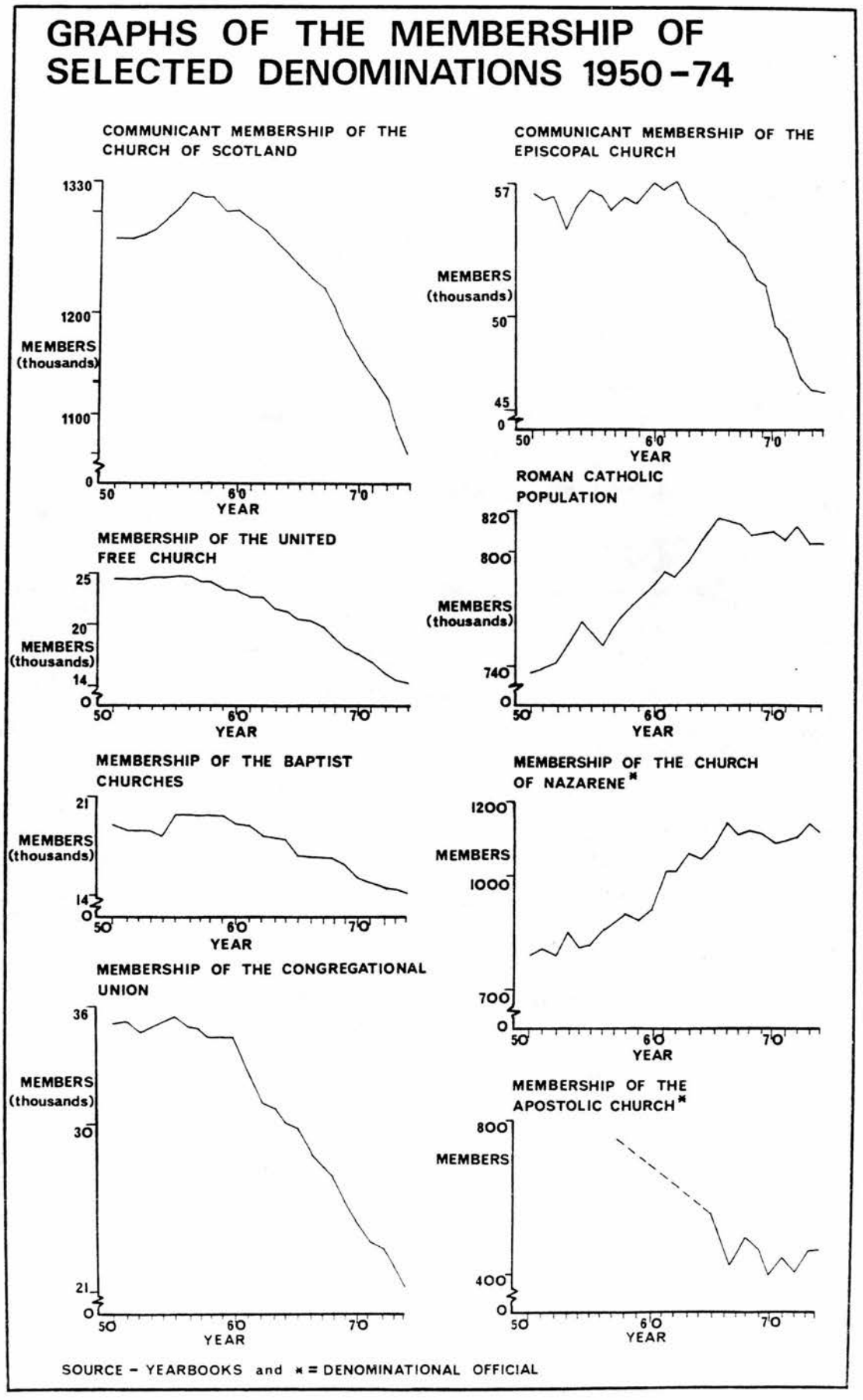

GRAPHS OF THE MEMBERSHIP OF SELECTED DENOMINATIONS 1950-74
COMMUNICANT MEMBERSHIP OF THE CHURCH OF SCOTLAND
1330
1200
MEMBERS (thousands)
1100
0
50
60
70
YEAR
COMMUNICANT MEMBERSHIP OF THE EPISCOPAL CHURCH
57
MEMBERS (thousands)
50
45
0
50
60
70
YEAR
MEMBERSHIP OF THE UNITED FREE CHURCH
25
20
MEMBERS (thousands)
14
0
50
60
70
YEAR
ROMAN CATHOLIC POPULATION
820
800
MEMBERS (thousands)
740
0
50
60
70
YEAR
MEMBERSHIP OF THE BAPTIST CHURCHES
21
MEMBERS (thousands)
14
0
50
60
70
YEAR
MEMBERSHIP OF THE CHURCH OF NAZARENE*
1200
MEMBERS
1000
700
0
50
60
70
YEAR
MEMBERSHIP OF THE CONGREGATIONAL UNION
36
MEMBERS (thousands)
30
21
0
50
60
70
YEAR
MEMBERSHIP OF THE APOSTOLIC CHURCH*
800
MEMBERS
400
0
50
60
70
YEAR
SOURCE - YEARBOOKS and * = DENOMINATIONAL OFFICIAL

Figure 5.1

Figure 5.2

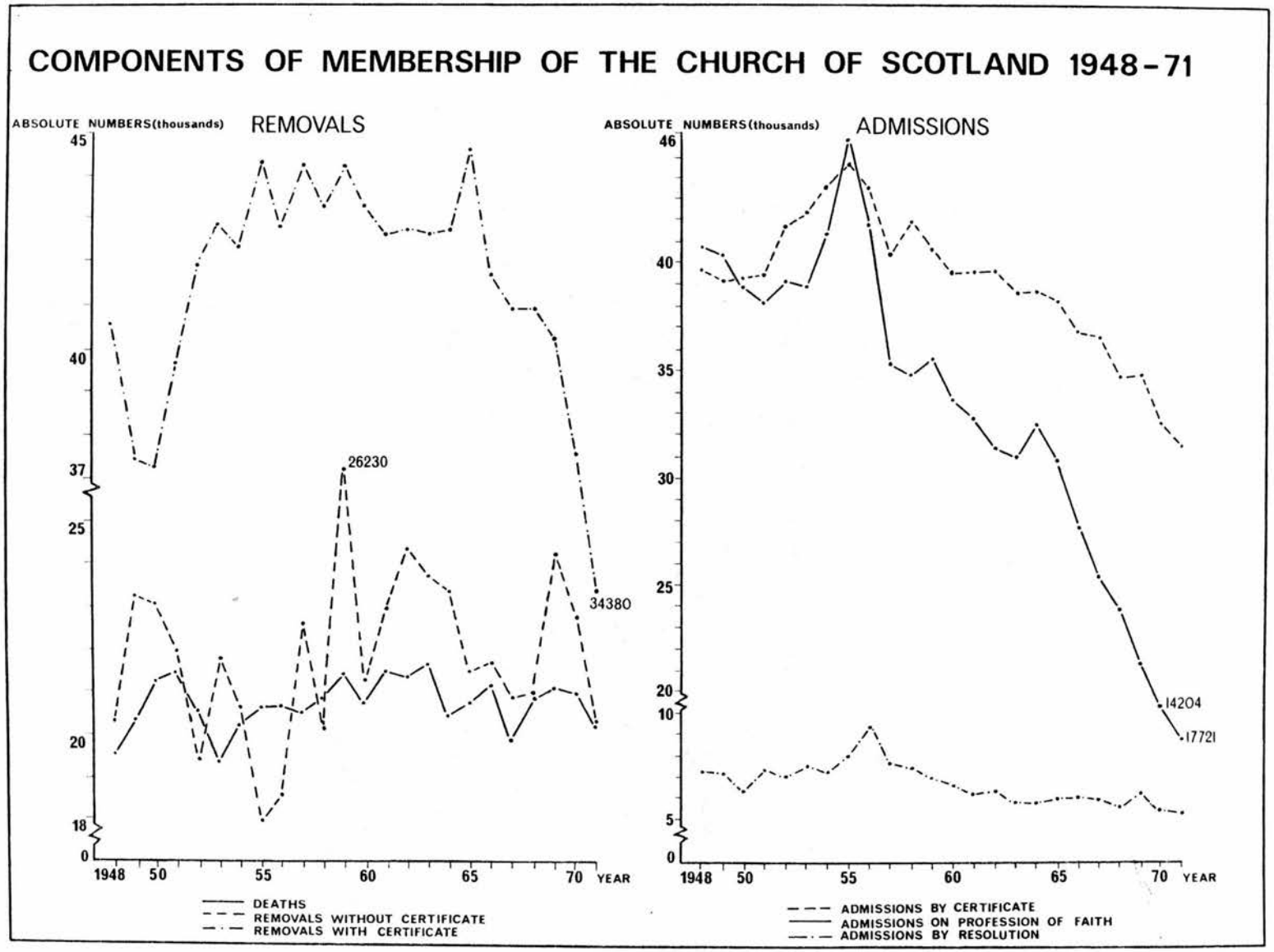
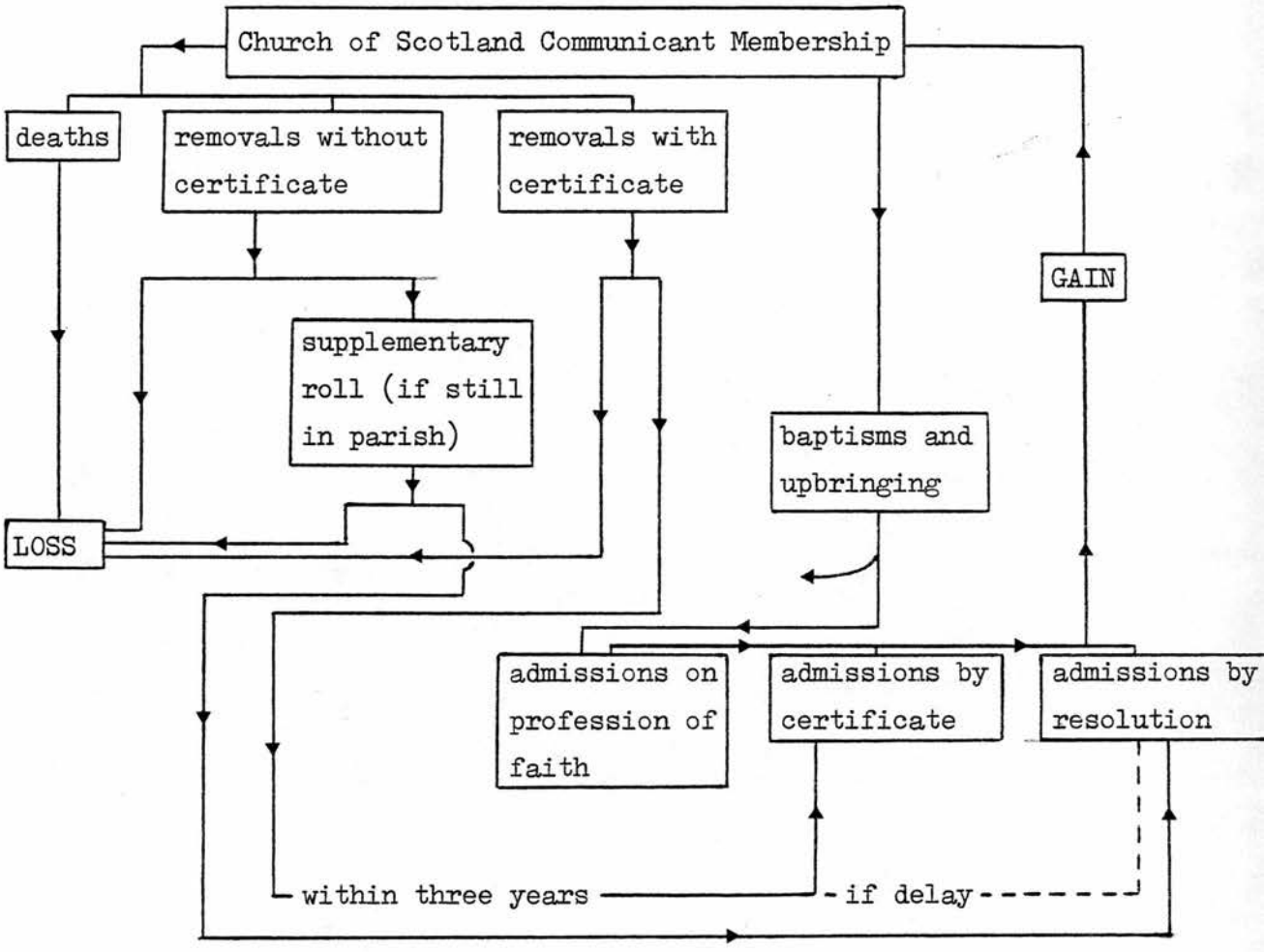

COMPONENTS OF MEMBERSHIP OF THE CHURCH OF SCOTLAND 1948-71
ABSOLUTE NUMBERS(thousands)
REMOVALS
45
40
37
25
20
18
0
26230
34380
1948
50
55
60
65
70
YEAR
DEATHS
REMOVALS WITHOUT CERTIFICATE
REMOVALS WITH CERTIFICATE
ABSOLUTE NUMBERS(thousands)
ADMISSIONS
46
40
35
30
25
20
10
5
0
14204
17721
1948
50
55
60
65
70
YEAR
ADMISSIONS BY CERTIFICATE
ADMISSIONS ON PROFESSION OF FAITH
ADMISSIONS BY RESOLUTION

Figure 5.3 - A Schematic View of the Components of Membership of the Church of Scotland



The graph (Figure 5.2) of the number of removals shows that deaths have tended to remain of the same order of magnitude throughout the period covered, whereas the greatest fluctuations have occurred in the number of removals with or without certificate. A removal by certificate suggests that a member has left a congregation with the intention of renewing church membership in another. The conscious decision to acquire a certificate for removal usually indicates that mobility is involved. A removal without certificate can be attributed to any one of several reasons. First that a move has been made within Scotland with little or no intention of renewing church membership at destination. Second that emigration has been planned to a country outside Scotland where it may not be possible to continue in membership. Finally it can sometimes reflect disillusionment and the quitting of church membership in situ. That mobility is the principal agent in removal without certificate can be deduced from Table 5.1. The Supplementary Roll, which dates from 1938, records the total number of members who have removed without certificate but have remained in the same parish. There are errors in this roll but since it is the best data available it can be accepted as a fairly accurate estimate. It can be seen that the annual increments to this roll have been far less in number than the annual removals without certificate. The difference ought to be adjusted on the basis that annual increments to the roll were probably greater in most years than appears from Table 5.1. This would compensate for any losses to the roll because of deaths and migration. However, such adjustments would be small in comparison to the observed differences. This implies that most removals without certificate must have been to another parish or country. These

Table 5.1 - A Comparison of Annual Removals without Certificate to Annual Increments of the Supplementary Roll of the Church of Scotland, 1951 - 1971.

| Date | Removals without Certificate | Increment of the Supplementary Roll |
|---|---|---|
| 1951 | 21941 | + 3704 |
| 1952 | 19442 | + 1903 |
| 1953 | 21707 | + 1067 |
| 1954 | 20621 | + 385 |
| 1955 | 17999 | + 2539 |
| 1956 | 18591 | - 1138 |
| 1957 | 22565 | + 1132 |
| 1958 | 20140 | + 3263 |
| 1959 | 26250 | + 4808 |
| 1960 | 21222 | + 2940 |
| 1961 | 23000 | + 1853 |
| 1962 | 24327 | + 4265 |
| 1963 | 23723 | + 4204 |
| 1964 | 23320 | + 2212 |
| 1965 | 21489 | + 1897 |
| 1966 | 21688 | + 2809 |
| 1967 | 20870 | + 51 |
| 1968 | 20926 | + 1623 |
| 1969 | 24241 | - 2843 |
| 1970 | 22722 | + 3659 |
| 1971 | 20228 | + 2855 |

Source : Report of the Committee on General Administration, Reports to the General Assembly, 1951 - 71, Edinburgh.

removals, which were at their lowest level in the mid-1950s, possibly represent the greatest loss to the Church.

The graph of admissions (Figure 5.2) shows that the three types of admission commonly reached a numerical peak in the mid-1950s. The admissions by profession of faith represent the new input into the Church and these were already beginning to show a marked decline by 1948. A large numerical peak was achieved in 1955 but thereafter the decline resumed, becoming even greater after 1964. The admissions by certificate represent those persons who had previously removed by certificate and had since returned to the Church in a new location. To a large extent then, the admissions by certificate reflect the higher number of removals by certificate and therefore mobility. As the number of members who move away from their parish declines so too does the potential number of admissions by certificate. The argument is that the admissions by certificate cannot be seen in isolation, both admissions and removals are responsible for changes in the total church membership. For this purpose it is possible to devise an index of lapsing which brings together the numbers of removals and admissions with the exception of the numbers of deaths and admissions by profession of faith which are treated as a separate output and input respectively.

The extent of lapsing, the difference between the number of admissions by certificate or resolution and the number of removals with or without certificate, is shown in Figure 5.4. From 1948 lapsing began to increase (note scale) but in the early 1950s it decreased and reached a minimum in 1956. From then onwards it has

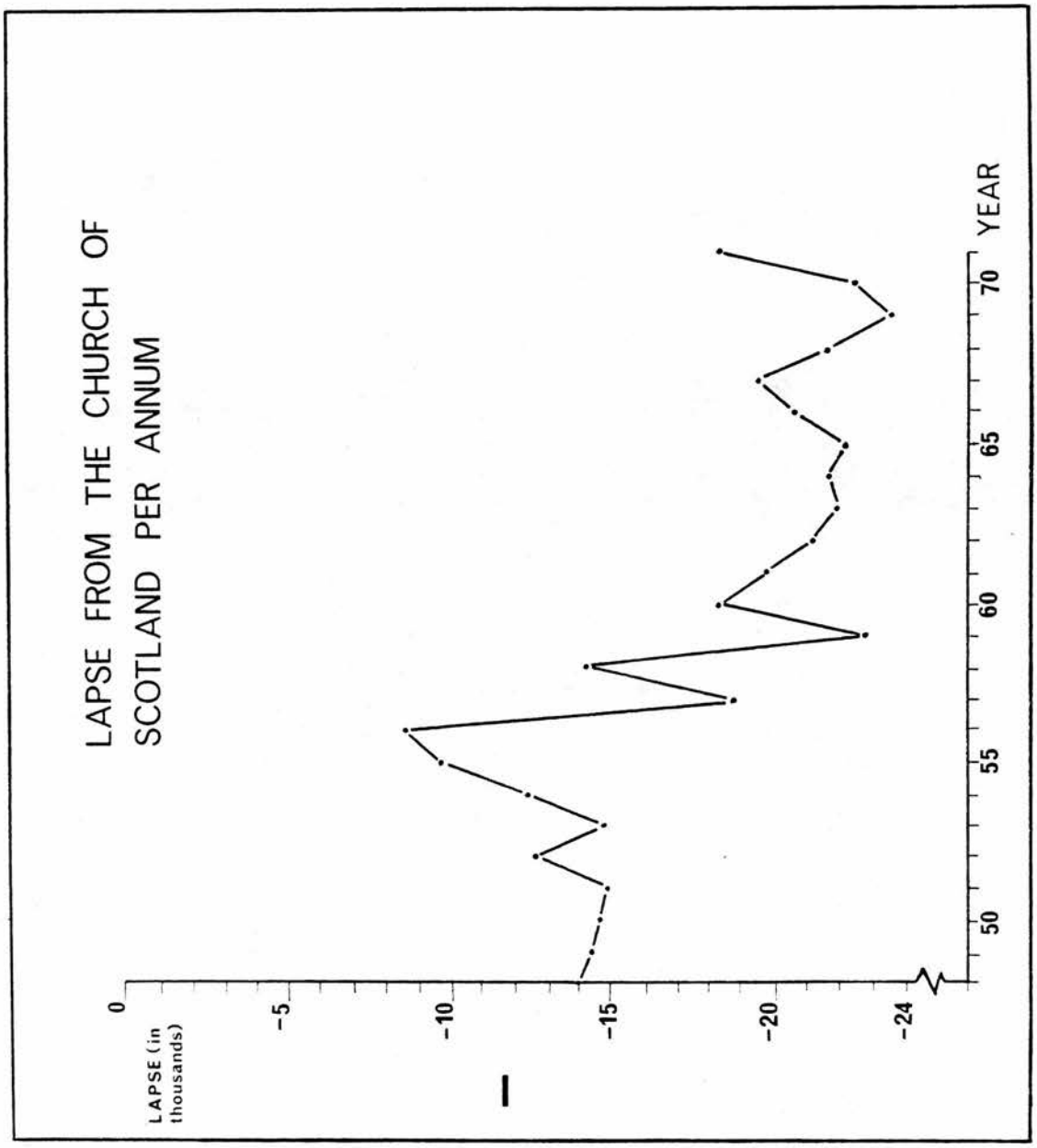

LAPSE FROM THE CHURCH OF SCOTLAND PER ANNUM
LAPSE (in thousands)
0
-5
-10
-15
-20
-24
50
55
60
65
70
YEAR

Figure 5.4

fluctuated while maintaining a generally increasing trend. The relative importance of this component as compared to deaths and the number of admissions by profession of faith can be judged from Table 5.2 which expresses the negative and positive components of change as a proportion of the total turnover in membership. From 1956 church membership began to decline; the contribution of the various components to this decline can be assessed from the changes in their magnitude in the years after 1956 against their average value for the 1948-56 period during which time church membership had been increasing. Deaths changed only to a small extent whereas the contributions of admissions on profession of faith and lapse were subject to large changes. It must be noted that although the percentage contribution of admissions on profession of faith exceeded the percentage contribution of lapsing to the total turnover in membership, apart from the years between 1969 and 1971, the increase in lapsing is very similar to the decrease in admissions by profession of faith. Therefore both of these components played a similar role in causing the overall trend to decrease in church membership from 1956.

So in looking for an explanation of change in the membership of the Church of Scotland it will be necessary to explain both the increased lapsing and the pronounced fall in the number of admissions on profession of faith. To some extent the two may be directly related to one another by a multiplier effect taking several years to operate, in that a declining number of families in church membership could cause fewer children to become members of the Church. It is also apposite to note at this stage that, in the light of the role which mobility of church members plays in the process of lapsing

Table 5.2 - Total Turnover (deaths, lapse, admissions by profession) in Church of Scotland Membership, 1948 - 1971

| YEAR | Negative Components as a Percentage of Total Turnover | | Positive Component as a Percentage of Total Turnover |
|---|---|---|---|
| | DEATHS | LAPSE | ADMISSIONS BY PROFESSION |
| 1948 | 26.3 | 18.8 | 54.9 |
| 1949 | 27.1 | 19.2 | 53.7 |
| 1950 | 28.4 | 19.6 | 52.0 |
| 1951 | 28.9 | 19.9 | 51.2 |
| 1952 | 28.4 | 17.5 | 54.1 |
| 1953 | 26.5 | 20.2 | 53.3 |
| 1954 | 27.5 | 16.5 | 56.0 |
| 1955 | 27.1 | 12.8 | 60.1 |
| 1956 | 29.1 | 12.1 | 58.8 |
| Average Value for 48 - 56. | 27.7 | 17.4 | 54.9 |
| | In brackets the difference between the current value for a year and the average value for 1948 - 56 | | |
| 1957 | 27.5 (-0.2) | 25.1 (+7.7) | 47.4 (-7.5) |
| 1958 | 29.9 (+2.2) | 20.2 (+2.8) | 49.9 (-5.0) |
| 1959 | 26.8 (-0.9) | 28.7 (+11.3) | 44.5 (-10.4) |
| 1960 | 28.5 (+0.9) | 24.5 (+7.1) | 46.9 (-8.0) |
| 1961 | 29.0 (+1.3) | 26.8 (+9.4) | 44.2 (-10.7) |
| 1962 | 28.9 (+1.2) | 28.6 (+11.2) | 42.5 (-12.4) |
| 1963 | 29.0 (+1.3) | 29.5 (+12.1) | 41.5 (-13.4) |
| 1964 | 27.4 (-0.3) | 29.1 (+11.7) | 43.5 (-11.4) |
| 1965 | 28.2 (+0.5) | 30.0 (+12.6) | 41.8 (-13.1) |
| 1966 | 30.5 (+2.8) | 29.7 (+12.3) | 39.8 (-15.1) |
| 1967 | 30.7 (+3.0) | 30.2 (+12.8) | 39.1 (-15.8) |
| 1968 | 31.5 (+3.8) | 32.6 (+15.2) | 35.9 (-19.0) |
| 1969 | 32.0 (+4.3) | 35.9 (+18.5) | 32.1 (-22.8) |
| 1970 | 33.4 (+5.7) | 35.9 (+18.5) | 30.7 (-24.2) |
| 1971 | 35.8 (+8.1) | 32.6 (+15.2) | 31.6 (-23.3) |

at least, there might be advantages in using a spatial framework. This supports an argument that the results from time series analysis of church membership must not be viewed in isolation from those of the spatial analysis which will be the subject of Chapter VI.

Returning to Figure 5.1 we can see that other principal denominations of Scotland have also experienced a numerical peak in membership with subsequent decline. What differentiates all denominations is the exact timing of the transition from growth to decline. The exceptional cases are represented by the Roman Catholic Church and the Church of the Nazarene. Growth has continued throughout most of the study period for these Churches; yet even for these growth has been checked albeit at a later date than for other denominations.

A final but very significant consideration for this examination of the response variable is the mode of measurement of membership. Although other denominations do not provide the data that the Church of Scotland does for an analysis of the components of membership, at least the basis for recording membership numbers in many of these denominations is similar to that for the Church of Scotland. In most denominations membership figures refer to adults, that is members usually in excess of fifteen to seventeen years of age. However, the figures of Roman Catholic membership are those of the Catholic 'Population' which includes all baptised Catholics regardless of age and of whether or not they continue to practise their faith. This difference of measurement has to be taken into consideration in formulating the hypotheses. These are outlined in the following section.

## 5.3 THE FORMULATION OF HYPOTHESES

A set of three a priori hypotheses have been formulated, partly with the assistance of the available results of empirical work, carried out at the micro-level, in disciplines outside Geography, for example Sociology. Church membership in Scotland in 1971 formed about 50 per cent of the adult population[1]. For this reason it is suggested that change in church membership can not be related to secularisation only, defined as the discarding of religious worship, if not belief, but also to variations in the characteristics and behaviour of the Scottish population over the period. The need for a wider approach than the secularisation hypothesis is also suggested by the variety of trends in membership of different Churches. Three hypotheses emerge: the first relates to mobility and the second and third relate to variation in the demographic structure and socio-economic characteristics of the population of Scotland.

### (1) Mobility Hypotheses

Migration is one of the chief causes of variation in the size, distribution and composition of a population. Such movements of population can be classified as either internal or external migration. External migration is defined as immigration to, or emigration from, Scotland. It is postulated that the net movement

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[1] This figure is approximate. It is derived from data given in Table 6.1 with an adjustment made to Catholic population to exclude those under fifteen years of age (Spencer, 1969, p.8). The combined total is expressed as a percentage of population over the age of seventeen (Table 5.4).

of people to and from Scotland is likely to have an effect upon the membership of Scottish Churches. Since the balance of migration for the period has been outward the effect was likely to be negative. The impact of external migration upon the Catholic and the Episcopal Churches is of particular interest since they have an appeal which is specific to certain nationalities; the Episcopal Church to the English migrant and the Roman Catholic Church to the migrant from the Republic of Ireland.

Internal migration refers to all movement within Scotland. When such movement exceeds a certain distance threshold it can have a negative effect upon church membership (Nelson and Clews, 1971, p.43). The frequency of migration has been shown to be a disincentive to church membership (Gill, 1976, p.51). It has already been indicated from the components of membership that mobility is an important factor relating to the loss of members from the Church of Scotland. Some evidence of the scale of redistribution of church membership in the post-War period is given by the following figures for the Catholic Church in and around Glasgow, though this is a feature which can be better investigated within the spatial framework of the next chapter:

TABLE 5.3 CHANGES IN THE CATHOLIC POPULATION, 1951 AND 1970, IN AND AROUND GLASGOW.

| Catholic Population | 1951 | 1970 |
|---|---|---|
| City Centre | 69300 | 18300 |
| Rest of City | 192300 | 180700 |
| Outer Suburbs | 23400 | 78200 |
| City of Glasgow | 285000 | 277200 |
| New Towns | | |
| Cumbernauld | - | 5370 |
| East Kilbride | 400 | 11960 |

Source: The Catholic Directory for Scotland, 1971, p.367.

Hypothesis (1):

> Internal migration has the effect of reducing the membership of a Church because it is associated with a tendency not to renew membership at destination. Both internal and external migration are offered as factors that may have contributed to changes in church membership over the period.

(2) Demographic Structure Hypotheses

Whilst a basic division of the total population by sex would be unlikely at this aggregate scale of analysis to reveal any relationship that it may have to church membership, age structure may do so. The tendency for the propensity for church membership to increase approximately with age has been noted (Gill, 1976, p.51). In order to

make the use of age composition intelligible, it was decided to adopt four age groups; age group 1 representing those persons less than twenty years of age; age group 2 representing those between twenty-one and thirty-four years, age group 3 representing those between thirty-five and fifty-nine years; and age group 4 representing those over sixty years of age.

The specific age groups appear to provide 'reservoirs' of potential membership for denominations so that expansion or contraction of their size would be likely to affect the number of church members. The upper age groups are the more common in the membership of most denominations. Persons belonging to the first age group are too young since the minimum age for admission to membership is usually between fifteen and seventeen years, while those in the second age group tend to be the most mobile (Hollingsworth, 1970, pp.63 and 97) and so are possible the least likely to become church members. A bias to the remaining groups can be shown for the Church of Scotland by the following evidence:

TABLE 5.4 A COMPARISON OF MEMBERSHIP OF THE CHURCH OF SCOTLAND AND SCOTTISH POPULATION IN 1971 BY AGE GROUP

| Age (years) group | Church of Scotland membership[1] | | All other members of the Scottish population over seventeen years of age | | Total Scottish population over seventeen years[2] | |
|---|---|---|---|---|---|---|
| | % | absolute | % | absolute | % | absolute |
| 17/34 | 21.67 | 250118 | 39.56 | 998782 | 33.95 | 1248900 |
| 35+ | 78.33 | 904093 | 60.44 | 1526007 | 66.05 | 2430100 |
| Total | 100.00 | 1154211 | 100.00 | 2524789 | 100.00 | 3679000 |

1. Source: 'Report of the Advisory Board', Reports to the General Assembly, 1971, Edinburgh, pp.117-8.

2. Source: Annual Abstract of Statistics, 108, Central Statistical Office, 1971, London, p.11.

These data show that the Church of Scotland had, in 1971, a distinctly greater proportion of its membership drawn from the over 35 age group when compared to the Scottish population. This bias is probably more extreme than it would have been in the earlier years of the study period since it will, in large part, not only reflect the greater propensity for church membership in the older age groups but also the diminishing annual intake of young new communicants (admissions on profession of faith) in the years preceeding 1971. Within the group of persons over the age of thirty-five it is those in age group 3 who are considered to be the more important influence upon the membership of most Churches because the remainder, those in age group 4, include many who for reasons of age, infirmity and lack of personal mobility are unable to participate in church activities.

These proposals do not, however, apply to the Roman Catholic Church since the Catholic population comprises all age groups and is therefore likely to be more directly influenced by changes in fertility and natural increase or decrease. Although all of the age groups are represented in this denomination there is evidence to indicate the youthful nature of its membership; in 1967, 34 per cent of the Catholic population were under the age of fifteen (Spencer, 1969, p.8). Thus changes in the Catholic population will be closely related to changes in the input of new members, represented by age group 1.

Hypothesis (2):

> Specific age groups provide 'reservoirs' of potential membership for denominations and fluctuation in their size will have a corresponding effect upon membership.

(3) Socio-Economic Hypotheses

Church membership is related to social class. Significantly lower rates of 'working-class' participation have been identified (Robertson, 1968, pp.11-31). The membership of Protestant Churches is more strongly related to upper socio-economic groups while there is a lower class presence principally in the Catholic Church (Sissons, 1973, pp.59-62). Changes in church membership may be related to changes in the strength and distribution of differing social classes in Scotland.

The definition of social class does pose several problems but, by contrast, the economic aspects of society ought to be more readily measurable. In order to achieve such a measure, the level of disposable income is used as an index of competing activities to the Church (for example, television, recreation and shift-work). This index can be related, in particular, to the decline in the number of admissions of young people to the Church.

Hypothesis (3):

> Membership trends are related to changes in the strength and distribution of specific social groups and to variation in the wealth of society.

The three hypotheses which have been formulated can be tested by a range of regressor variables. These variables are defined and evaluated in the following section.

## 5.4 THE REGRESSOR VARIABLES

The available regressor variables are now considered in order of their requirement for the three hypotheses.

(1) Mobility Variables

There are two possible ways to measure internal migration over this period; a direct measure or an indirect measure of population movement can be used. The direct measures suffer from a variety of deficiencies. Those which can be obtained from the national Census of Scotland are not available for a continuing series, but only for 1951, 1961, 1966 and 1971. Although figures from the National Health Service Central Register of Patients' Movements are available as a continuing series, they suffer from several problems concerning their accuracy. The records contain varying degrees of under - and over - recording because of a bias to older age groups and a delay in recording a move between the date of departure and the date of registration. Furthermore, these data are available in a consistent form only from the end of 1955 onwards. The delay in the recording of movement has been estimated by the Registrar-General to be on average about three months. This delay can be accounted for in the figures by making the original data run not from the beginning of the third quarter of one year to the end of the second quarter of the next but, instead, from the beginning of the second quarter in a year to the end of the first quarter in the next year. The graph of these data in their revised form is shown in Figure 5.5a, and it is interesting to note that the rate of population movement within Scotland has continued to rise throughout the period from 1955. However, the omission of the years prior to 1955 means that the series is too short for statistical purposes in this analysis and that results from such an analysis could be misleading. Given these failings of direct measures of internal migration it appears that the indirect measures are the only ones appropriate to this analysis.

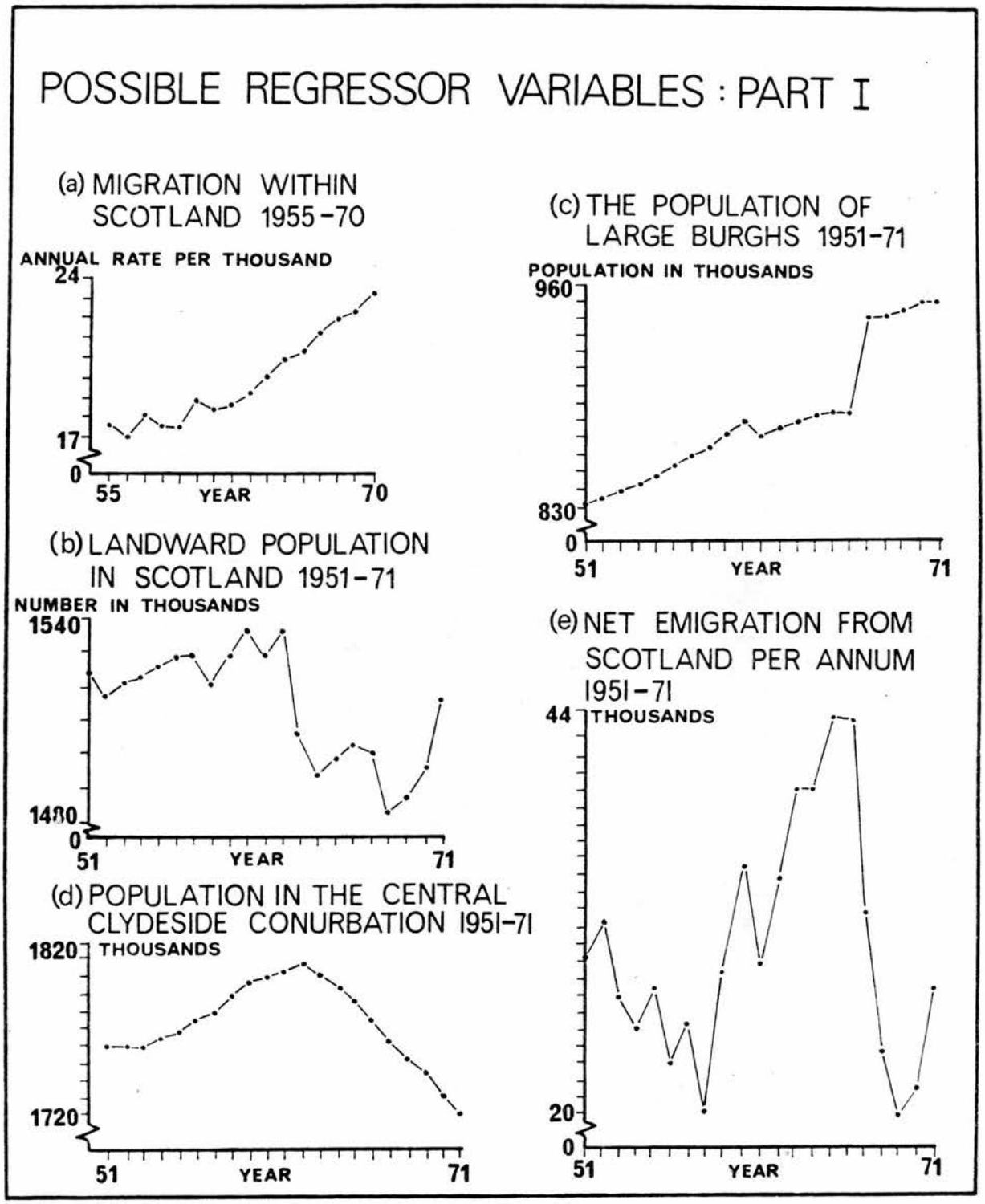
POSSIBLE REGRESSOR VARIABLES : PART I
(a) MIGRATION WITHIN SCOTLAND 1955-70
ANNUAL RATE PER THOUSAND
24
17
0
55
YEAR
70
(b) LANDWARD POPULATION IN SCOTLAND 1951-71
NUMBER IN THOUSANDS
1540
1480
0
51
YEAR
71
(c) THE POPULATION OF LARGE BURGHS 1951-71
POPULATION IN THOUSANDS
960
830
0
51
YEAR
71
(d) POPULATION IN THE CENTRAL CLYDESIDE CONURBATION 1951-71
1820
THOUSANDS
1720
51
YEAR
71
(e) NET EMIGRATION FROM SCOTLAND PER ANNUM 1951-71
44
THOUSANDS
20
0
51
YEAR
71

Figure 5.5

Indirect measures of the distribution of the Scottish population between urban and rural areas can be derived from the Annual Report of the Registrar-General for Scotland. The size of the rural population can be approximated by the landward population (Figure 5.5b) while urban population can be represented in several ways, two of which have been chosen for this analysis; the population in large burghs (Figure 5.5c) and the population of the Central Clydeside Conurbation (Figure 5.5d).

The Annual Report of the Registrar-General for Scotland is also a suitable source of data on external migration. There are no data, from any available source, on immigration from the Republic of Ireland or the distinction in terms of nationality of migrants between England and Scotland. So while it may be known that there was a substantial migratory flow into Scotland during the 1950s, and again in the mid-1960s, from Ireland (Perman, 1977, p.30) it is not possible to gauge accurately the effect of this flow upon the Catholic Church in Scotland. Similarly it is impossible to gauge the effect of migration between England and Scotland upon the Episcopal Church. Given these limitations it is still possible to use the figures of net migration from Scotland (Figure 5.5e) in this analysis. However, this net migration cannot be decomposed into time series of immigration and emigration since the only available source for these is the National Health Service Central Register which begins in a consistent form from 1955 and not 1951.

(2) Demographic Structure Variables

The rationale and method of division of the Scottish population into four age groups has already been given in Part 2 of

Section 5.3. The data for these were obtained from the Annual Abstract of Statistics. Figure 5.6a and 5.6b represent the data for age groups 1 and 3 respectively.

(3) Socio-Economic Variables

Social class is difficult to define and is therefore difficult to measure, especially at this scale of analysis. Accordingly the number of housing completions has been used as a surrogate measure which can be sub-divided into those of private ownership (Figure 5.6c) and those belonging to local authorities (Figure 5.6d). Presumably these variables could be more than a function of social class; not only could they reflect economic conditions but they could also be surrogates for increasing mobility to new housing estates. For those denominations about which a definite class relationship could not be hypothesised the two types of housing completion were combined to form a new variable (Housecom) that would be used as a general measure of wealth and mobility. Data for these variables were again abstracted from the Annual Abstract of Statistics.

The final variable that is considered is a measure of per capita disposable income (Pcdi). Although such a figure is obtainable[1] from the Annual Abstract of Statistics it refers to the United Kingdom rather than to Scotland alone, and, because of national differences in family size and income, it could suffer from measurement error in a purely Scottish context (Figure 5.6e).

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[1] By dividing total disposable income (personal income less tax and national insurance contributions) by the estimated total population for every year and adjusting the results to a common base of the retail price index in 1947.

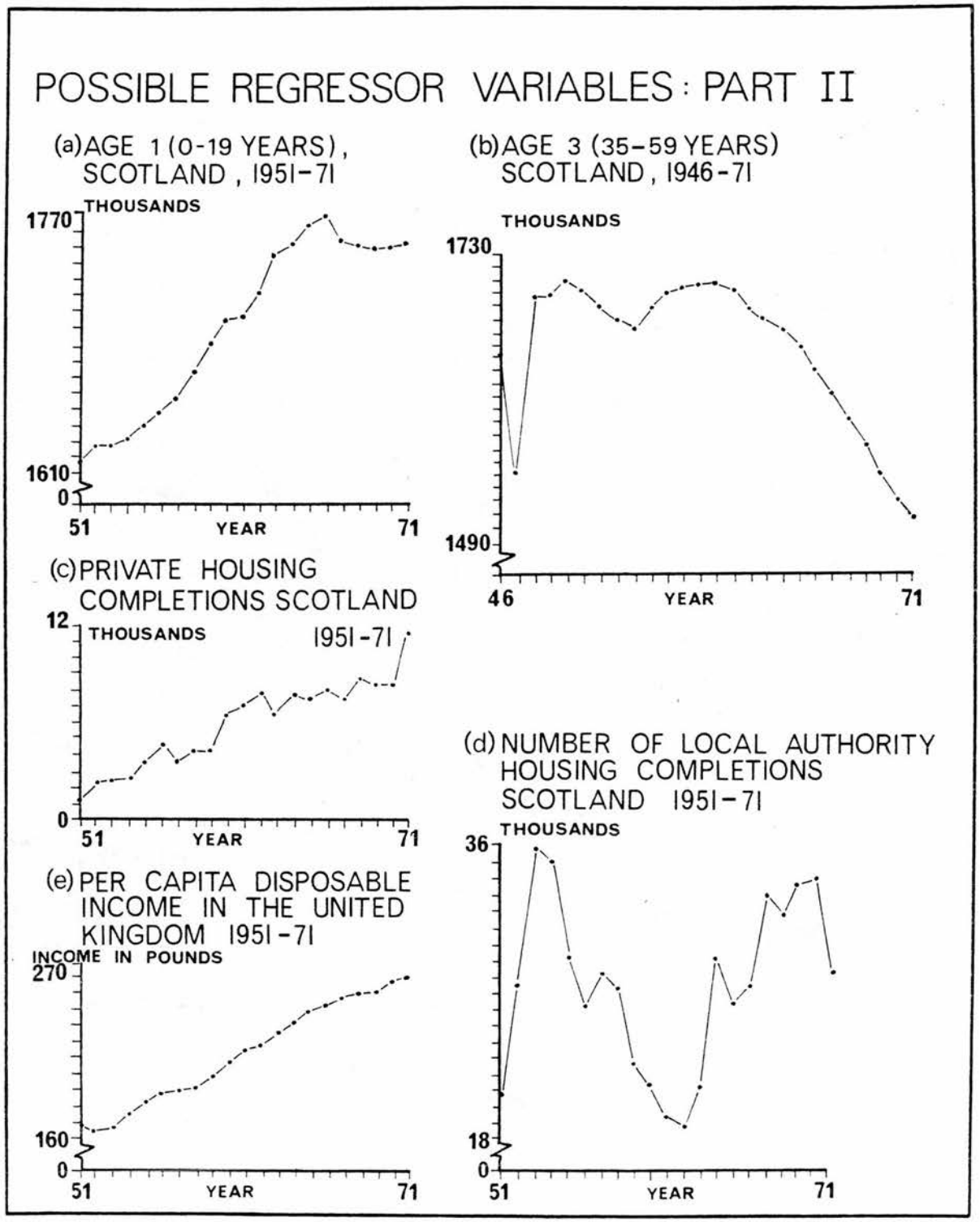
POSSIBLE REGRESSOR VARIABLES : PART II
(a) AGE 1 (0-19 YEARS), SCOTLAND, 1951-71
THOUSANDS
1770
1610
0
51
YEAR
71
(b) AGE 3 (35-59 YEARS) SCOTLAND, 1946-71
THOUSANDS
1730
1490
46
YEAR
71
(c) PRIVATE HOUSING COMPLETIONS SCOTLAND 1951-71
12
THOUSANDS
0
51
YEAR
71
(d) NUMBER OF LOCAL AUTHORITY HOUSING COMPLETIONS SCOTLAND 1951-71
THOUSANDS
36
18
0
51
YEAR
71
(e) PER CAPITA DISPOSABLE INCOME IN THE UNITED KINGDOM 1951-71
INCOME IN POUNDS
270
160
0
51
YEAR
71

Figure 5.6

## 5.5 REGRESSION METHODS AND TIME SERIES ANALYSIS

Regression methods are used in this analysis to examine the relationship between time series. Prior to the analysis it is necessary to specify the particular model that is to be employed. The use made here of regression methods is informal and descriptive. A linear model is fitted since it is appropriate to the data. A check for linearity and homoscedasticity (the assumption of equal variance in the residuals which, if it were to be contravened, would lead to inefficient estimates of the regression coefficients) was executed by examining a plot of the residuals from each regression fitted. It is also important that the regressor variables should be limited in number and should not be seriously collinear; if many regressor variables were to be used in a regression model a high multiple correlation coefficient might be achieved. A high level of statistical explanation could be spurious and could reflect the number, as opposed to the relevance, of the regressor variables. For this reason the number of regressor variables in each model has been restricted to a maximum of five. Collinearity is usually regarded as severe when the pairwise correlation coefficient between any two regressor variables exceeds 0.8 (Hauser, 1974, p.152). If both such regressor variables were to be included in a regression model the result would be an imprecise estimation of coefficients and, since both variables could be measuring the same phenomenon, it would be necessary to exclude one of them.

A further consideration in the use of regression methods is the independence of the deviations from the regression; but the

relevance of this assumption must be assessed in the context of the particular time series application. When two or more time series are:

> . . . intercorrelated as the result of trends which may not reflect logical or causal relations between them, the use of first differences will typically reduce intercorrelation and increase the probability that the regression coefficients obtained will represent meaningful relationships.
>
> (Ezekiel and Fox, 1959, pp.340 and 342).

For similar reasons trends are removed from the time series which are included in the present regression models. Having removed the trend from the data it is possible to model the variation in the residuals by means of a stationary stochastic process; that is, where there is no systematic long-term change in the mean and variance of the residuals. The Durbin Watson test (d-value) for serial correlation in residuals was employed to establish whether the trend had been removed from the series of a given regression model. However, there are limitations which are implicit in this approach. It is a simplifying assumption of this analysis that an observation of the response variable at time t is not related to its lagged values (not autoregressive) or to the lagged values of other variables several years previously. It is assumed that current membership of a denomination does not depend upon previous levels of membership and in any year membership depends upon, for example, the size of an age group in that year rather than its size several years previously. If in fact the series was autoregressive then the Durbin Watson test would not be applicable without modification of the series (Kendall, 1976, p.165). Consequently the d-value must be treated with caution;

the conclusions drawn from it depend upon the simplifying assumptions of this analysis which, because of the shortness of the series under consideration, is unable to establish the possible existence of more complex generating mechanisms such as lag.

The method of removing trend from the study series usually involved first-order differencing which can be illustrated as follows; a first-order difference will produce a new series $(y_1, \ldots, y_{n-1})$ from the original series $(x_1, \ldots, x_n)$ by $y_t = x_{t+1} - x_t = \nabla x_{t=1}$ (Chatfield, 1975, p.21). Second-order differencing involves the repetition of the same procedure with the series derived from the first-order differencing as input. Second-order differencing is required only in the model for the Church of Scotland since first-order differencing was not sufficient to remove trend as identified by the d-value.

## 5.6 TOWARDS THE MODELS OF CHANGE IN CHURCH MEMBERSHIP

There are two well defined steps in the testing of models of church membership. The first is an examination of the correlation matrix for the available regressor variables against the response variable. On the basis of these coefficients it is possible to detect potentially significant relationships and to check for collinearity amongst the regressor variables. The second step is to fit a multiple linear regression model to the series for each denomination. However, an initial trial for the Church of Scotland gave a very high multiple correlation coefficient (henceforward referred to as R) and a high coefficient of multiple determination

(the square of R or $R^2$ which indicates the proportion of the variance in the response variable explained by the linear association with the regressors). Division of the series for the Church of Scotland, into two parts; pre-1956 and post-1956, reveals that the high levels of statistical explanation are the results of strong time trends in the variables. There is clearly a need to remove these trends in order to examine the true relationship between the series.

A similar procedure has been applied to the series for other denominations under study and again differencing was found to be appropriate. The results from fitting descriptive linear regression models for the whole period, from 1951 to 1971, are presented in Table 5.5. The Durbin Watson test for serial correlation in the residuals from regression is given at the five per cent significance level. It can be seen from Table 5.5 that when the full sets of regressor variables (referred to as A in Table 5.5) were used, the only models with d-values which indicated the absence of serial correlation in the residuals were those for the Church of Scotland using second-order differencing and for the United Free Church using first-order differencing. It is not possible to make use of the remaining models using full sets of regressor variables because there is uncertainty, indicated by an inconclusive d-value, as to whether or not trend in the series had been removed. This uncertainty remained in spite of first-and second-order differencing of the series.

In order to refine the models which had been obtained a process was derived whereby regressor variables that contributed little

Table 5.5 - Results from Regression for Selected Denominations in Scotland, 1951 - 1971

| DENOMINATION AND INDEPENDENT VARIABLES | FIRST ORDER DIFFERENCING n=20 | | | SECOND ORDER DIFFERENCING n=19 | | |
|---|---|---|---|---|---|---|
| | R | Durbin Watson Statistic | | R | Durbin Watson Statistic | |
| Church of Scotland | | | | | | |
| A: Ccc, Landward | - | - | | B: 0.793 | 2.39 | no serial correlation |
| B: Private, Age 3, pcdi | A: 0.804 | 0.53 | positive serial correlation | A: 0.801 | 2.09 | no serial correlation |
| Roman Catholic | | | | | | |
| A: Age 1, Localau, Pcdi, Ccc | A: 0.582 | 2.36 | inconclusive | A: 0.395 | 2.44 | inconclusive |
| B: Localau, Age 1, Lb | B: 0.6 | 2.37 | no serial correlation | - | - | |
| Episcopal Church | | | | | | |
| A: Age 3, Landward | B: 0.66 | 2.68 | inconclusive | - | - | |
| B: Ccc, Pcdi, Private | A: 0.66 | 2.75 | inconclusive | A: 0.32 | 2.81 | inconclusive |
| Baptist Church | | | | | | |
| A: Housecom, Landward, Pcdi | B: 0.69 | 1.94 | no serial correlation | - | - | |
| B: Age 3, Ccc | A: 0.71 | 1.86 | inconclusive | A: 0.682 | 2.32 | inconclusive |
| Congregational | | | | | | |
| A: Landward, Pcdi | B: 0.57 | 1.54 | inconclusive | - | - | |
| B: Age 3, Housecom, Ccc | A: 0.624 | 1.81 | inconclusive | A: 0.363 | 2.28 | inconclusive |
| United Free | | | | | | |
| A: Landward, Pcdi | B: 0.7 | 1.85 | no serial correlation | - | - | |
| B: Ccc, Housecom, Age 3 | A: 0.734 | 1.95 | no serial correlation | A: 0.530 | 2.82 | inconclusive |
| Church of the Nazarene | | | | | | |
| A: Age 3, Landward, Pcdi | B: 0.21 | 2.19 | no serial correlation | - | - | |
| B: Ccc, Housecom | A: 0.343 | 2.41 | inconclusive | A: 0.241 | 2.67 | inconclusive |

to the overall level of statistical explanation could be identified and, if necessary, excluded from the model. The resultant refined version of a model is referred to as (B) in Table 5.5. The process can be illustrated by the example of the Church of Scotland given in Table 5.6. The additional contribution made by each of the regressor variables to the explained portion of the total sums of squares is established and the residual represents the unexplained remainder of the total sums of squares. By varying the order of entry of the regressor variables in a hierarchical regression equation, in which the variables are added in single steps according to a predetermined order, it is possible to establish the relative significance of each variable since the increment in $R^2$ at each step can be taken as the component of variation attributable to the particular variable added on that step. In this example, shown in Table 5.6, attention is focussed upon the two variables that were entered last in the initial equation (a). In this equation the variable Landward (rural population) can be seen to make a negligible contribution and the variable Ccc (population of the Central Clydeside Conurbation) to make only a small contribution to the explained sums of squares. The reversal of the position of these two variables in equation (b) shows that they maintain approximately the same relative contribution. In equation (c) the variable Ccc increases its relative contribution because the variable Private (private housing completions) is placed after it in the equation. Since the variable Private and Age group 3 make by far the largest contributions to explained variance they are retained in equation (d). The reason for preferring the variable Pcdi to Ccc is also shown by equation (d). When Pcdi is placed after the variable Private it achieves a contribution of 34.3, but when Ccc is placed after the

Table 5.6 - Alternative Forms of the Regression Equation for the Church of Scotland, 1951-71.

| Position in the Equation | Equation (a) Regressor Variable (rv) | Contribution to Explained Sums of Squares (cont.) | Equation (b) rv | cont. | Equation (c) rv | cont. |
|---|---|---|---|---|---|---|
| 1 | Age group 3 | 142.7 | Age group 3 | 142.7 | Age group 3 | 142.7 |
| 2 | Pcdi | 37.2 | Pcdi | 37.2 | Pcdi | 37.2 |
| 3 | Private | 168.3 | Private | 168.3 | Ccc | 39.2 |
| 4 | Landward | 0.1 | Ccc | 7.5 | Landward | 0.2 |
| 5 | Ccc | 8.1 | Landward | 0.7 | Private | 137.1 |

(Residual for (a), (b) and (c) = 198.0)

| Position in the Equation | Equation (d) rv | cont. | Equation (e) rv | cont. | Equation (f) rv | cont. |
|---|---|---|---|---|---|---|
| 1 | Age group 3 | 142.7 | Private | 224.5 | Private | 224.5 |
| 2 | Private | 171.2 | Pcdi | 35.1 | Age group 3 | 89.5 |
| 3 | Pcdi | 34.3 | Age group 3 | 88.6 | Pcdi | 34.3 |

(Residual for (d), (e) and (f) = 206.1)

variable Private, as in equations (a) and (b), it achieves very much less (8.1 or 7.5). Equations (e) and (f) represent the final stages in the process of entering regressor variables into the equation in order of their descending contributions to explained variance; alternative positions of the variable Age group 3 are tested and it is found to come after the variable Private, but before the variable Pcdi, in terms of contribution to the explained sums of squares.

When this procedure is applied to other denominations the removal of regressor variables which make little contribution to the overall level of explained variance has the additional effect of removing serial correlation in the residuals from regression such that particular models now appear appropriate for the Baptist Church and the Church of the Nazarene. Serial correlation in the residuals is also removed for the Roman Catholic Church model where, besides the reduction in the number of regressor variables used in the equation, a new variable Lb (population in large burghs) replaced the variable Ccc giving a higher level of statistical explanation ($R^2$). Where possible, first-order models are used and generally these give higher levels of statistical explanation. In some models it is impossible to remove autocorrelation in the residuals; this is especially true for the Episcopal Church and for the Congregational Union. On the other hand, while it was possible to remove this for the Church of Nazarene the model in this case gives only a low R value. Since the range of models has been reviewed and the derivation of the models explained, a few which are of potential value can be extracted from the table. Clearly the best results are achieved for the Church of Scotland and so the greatest attention is focussed on this denomination.

## 5.7 MODELS OF CHANGE IN CHURCH MEMBERSHIP

### (1) The Roman Catholic Church

The refined version of the model (B in Table 5.5) which substituted the variable Lb for Ccc and omitted Pcdi gives a higher level of statistical explanation than the initial model. The proposed relationship between Catholic population and local authority housing completions appears to be confirmed statistically. Similarly, the relationship between Age group 1 and the Catholic population is strong. A trial equation which used the number of baptisms rather than Age group 1 did not achieve the same success; Age group 1 gave a superior level of explanation, which possibly reflects the fact that this variable stores the information from several years rather than describes an annual event.

Much of the Catholic population is located in Central Scotland and, above all, in the West in and around Glasgow. It could be argued that the relationship between the variable Lb and the Catholic population is a result of the tendency for the growth of the Catholic population to be unaffected whilst movement out of Glasgow to the large burghs, including the New Towns, was gradual. However, when the population of the large burghs increased in the mid-1960s there was a fall in the Catholic population, possibly as a result of the numbers who lapsed from membership after a move and remained unrecognised by the Church.

Although this model provides several pointers in understanding the trend in the Catholic population, the overall

level of statistical explanation is relatively low ($R^2$ = 36 per cent) especially in view of the aggregate scale of the analysis. However, the approach through time series is constrained by data limitations and it is possible that further explanation will be achieved by a spatial approach to the same problem in the next chapter.

(2) The Baptist Church

A higher level of statistical explanation is achieved for this denomination ($R^2$ = 48 per cent) using only two regressor variables. The membership of this Church appears, like the Church of Scotland, to be most closely related to the third age group which serves to represent those most likely to be Protestant church members. There seems to be a close relationship between the membership of this Church and the population of the Central Clydeside Conurbation. The statistical relationship between the decline in membership and the movement of population out from the Conurbation is logical since Glasgow contains many of the congregations of this Church.

(3) The United Free Church

A similar level of statistical explanation is achieved for this denomination ($R^2$ = 49 per cent). The dominant explanatory variable is Ccc which again reflects the fact that approximately one half of the congregations of this Church occur within the Central Lowlands and are associated in particular with Glasgow. In this model Age group 3 plays a less important role, possibly reflecting a greater variety of age group in the membership of this denomination since it has more rural congregations than the Baptist Church. The

third variable, all housing completions, is included with more success than in the Baptist model, and with more success than the Pcdi variable. This success could reflect the dual role of this variable as a surrogate for wealth and mobility.

(4) The Church of Scotland

By far the best level of explanation is achieved for this Church ($R^2$ = 63 per cent) with second-order differencing. A refinement of the model demonstrated that the Landward and Ccc variables could be omitted with only a very small reduction in explained variance. These variables were considered of importance initially because this denomination is well represented in rural areas as an almost ubiquitous Church and because it is also numberically strong in major urban areas. It was expected that changes in membership might reflect changes that had taken place in these two generalised categories. However, it is clear that they make little contribution compared to that made by the three variables Private, Age group 3 and Pcdi.

The post-War growth in Age group 3 seems to have been reflected very strongly in the membership of this Church, as has the subsequent decline. This lends support to the initial argument that since Age group 3 is the age group from which most members tend to be drawn then changes in it will affect church membership numbers. This is not to deny that the other age groups have some influence but, since all age groups are ultimately related to one another in time, it is not feasible to include more than one age group in the model. The obvious choice is the age group with the strongest relationship to church membership.

The hypothesised effect of Pcdi is one of economic wealth as a proxy for competing activities; as they increased so too would the likelihood of lapsing from church membership and of fewer new communicants coming forward to join the Church. The hypothesised function of the private housing completions variable was one of indicating social class since social class is known to correspond to the propensity for church membership. In fact, church membership was declining while private housing completions were tending to increase so it must be a mobility and/or a wealth function which is (are) explanatory since both of these factors would tend to militate against church membership.

Once it is established that these three variables can be incorporated into a single model which can be justified on the grounds of hypothesised and, subsequently, statistically confirmed relationships there are several ways in which the quality of the model can be further assessed. The first of these relates to regression methodology while the remainder relate to the temporal aspects of the analysis. The first is a check for inter-active effects in the regression equation. It is assumed in regression analysis that the effects of regressor variables are additive such that the relationship between the response variable and any given regressor variable is the same across all values of the remaining regressor variables. If this was not so and there was in fact interaction between the regressor variables and this was ignored in the formulation of a regression equation then the resultant fit ($R^2$) would not be as high as it could be. By combining each pair of regressor variables (second-order terms) and by combining all three (third order-terms) it was possible to enter

these as additional regressor variables in the regression equation. It was found that neither second - nor third-order terms gave other than small increases in the amount of explained variance. It was therefore felt that interaction effects were not significant and that the regression model as previously specified was adequate.

There are three ways in which to examine the efficacy of the model in a time series context other than by the fit which it offers for the period as a whole. These are as follows:

(i) To establish whether the model gives a consistent fit throughout the period it is possible to test for discontinuities in the model and to test whether the relative contributions of the three regressor variables are roughly constant. For these purposes attention was concentrated in turn upon the two halves of the series; from 1951 to 1961 and from 1961 to 1971. The results for the first half of the period are shown in Table 5.7. These were derived by beginning with the full series from 1951 to 1971 and subtracting successive years from the earlier parts of the series until only the period from 1961 to 1971 remained. In this way attention could be focussed upon the performance of the model in the years between 1951 and 1961.

Information about the partial regression coefficient B which is standardised (expressed in standard deviation units), the contribution of each regressor variable to the explained portion of the total sums of squares, and a range of summary statistics are given for the model at each point in time. The B coefficient for

Table 5.7 - Results from Regression for the Church of Scotland 1951 - 71 with an Examination of the Series from 1951 to 1961

| Position in Regression Equation | Regressor Variable | Date: 1951/2-70/I | 52/3-70/I | 53/4-70/I | 54/5-70/I | 55/6-70/I | 56/7-70/I | 57/8-70/I | 58/9-70/I | 59/60-70/I | 60/1-70/I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Standardised Regression Coefficient B | | | | | | | | | |
| I | Private | 0.560 | 0.557 | 0.585 | 0.637 | 0.638 | 0.657 | 0.626 | 0.694 | 0.634 | 0.657 |
| 2 | Age 3 | 0.406 | 0.405 | 0.393 | 0.205 | 0.199 | 0.108 | 0.131 | 0.174 | 0.242 | 0.196 |
| 3 | Pcdi | 0.249 | 0.226 | 0.162 | 0.178 | 0.178 | -0.024 | -0.054 | 0.185 | 0.117 | 0.132 |
| | | Sums of Squares Explained by each Regressor Variable | | | | | | | | | |
| I | Private | 224.5 | 223.7 | 238.7 | 218.9 | 219.1 | 95.6 | 74.9 | 62.3 | 45.7 | 32.5 |
| 2 | Age 3 | 89.5 | 86.3 | 73.4 | 18.3 | 17.6 | 2.6 | 3.3 | 3.0 | 5.9 | 2.3 |
| 3 | Pcdi | 34.2 | 28.0 | 13.5 | 14.0 | 14.0 | 0.1 | 0.5 | 4.2 | 1.4 | 1.3 |
| | | Total Sums of Squares | | | | | | | | | |
| | | 554.3 | 553.8 | 522.8 | 447.2 | 446.6 | 212.3 | 179.1 | 124.2 | 103.2 | 86.4 |
| | | Sums of Squares Explained by each Variable as a Percentage of Total Sums of Squares | | | | | | | | | |
| I | Private | 40.5 | 40.4 | 45.7 | 49.0 | 49.1 | 45.0 | 41.8 | 50.1 | 44.3 | 37.6 |
| 2 | Age 2 | 16.1 | 15.6 | 14.0 | 4.1 | 3.9 | 1.2 | 1.8 | 2.5 | 5.7 | 2.7 |
| 3 | Pcdi | 6.2 | 5.1 | 2.6 | 3.1 | 3.1 | 0.1 | 0.3 | 3.4 | 1.3 | 1.6 |
| Summary Statistics | | | | | | | | | | | |
| Multiple Correlation Coefficient R | | 0.79 | 0.79 | 0.79 | 0.75 | 0.75 | 0.68 | 0.66 | 0.75 | 0.72 | 0.65 |
| Coefficient of Determination $R^2$ | | 63% | 63% | 62% | 56% | 56% | 46% | 44% | 56% | 51% | 42% |
| Durbin Watson d Value | | 2.39 | 2.37 | 2.47 | 2.47 | 2.23 | 2.78 | 2.26 | 2.35 | 2.38 | 2.28 |
| Conclusion based on d Value about Serial Correlation in the Residuals | | none | none | inconc-lusive | inconc-lusive | none | inconc-lusive | none | none | none | none |

a regressor variable may be used as a measure of the influence of that regressor variable upon the response variable with adjustment made for all other regressor variables in the model.

The relative contribution of each regressor variable remains constant throughout the period from 1951 to 1961 as shown by the B coefficient and contribution to explained variance (Table 5.7). There are discontinuities in the absolute contributions of each regressor variable through time; the variable Private becomes more significant after 1954/5 while Age group 3 becomes much less. It is notable, though, that the hierarchical importance of the three variables is consistent over the period. The discontinuity might have been expected in view of the more rapid rate of increase in membership from 1954 to the numerical peak of 1956 (Figure 5.1) and the discontinuity in the series of Age group 3 in 1954 (Figure 5.6b).

A similar analysis was repeated for the 1961-1971 period. This was achieved by beginning with the results from a linear regression fitted for the years from 1951 to 1961 and then adding successive years between 1961 and 1971 and on each occasion re-calculating the regression equation. The results of this analysis are presented in Table 5.8. Again the relative contribution made by each of the three regressor variables to explained variance is not constant throughout the period from 1961 to 1971. A discontinuity in their absolute contribution is apparent between 1965/6 and 1966/7 and although it does not alter the hierarchical importance of the three variables it is, in the case of private housing completions, a sizeable reduction in

Table 5.8 - Results from Regression for the Church of Scotland 1951 - 71 with an Examination of the Series from 1961 - 71

| Position in Regression Equation | Regressor Variable | Date: 1951/2-60/I | 51/2-61/2 | 51/2-62/3 | 51/2-63/4 | 51/2-64/5 | 51/2-65/6 | 51/2-66/7 | 51/2-67/8 | 51/2-68/9 | 51/2-70/I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Standardised Regression Coefficient B | | | | | | | | | |
| I | Private | 0.600 | 0.595 | 0.645 | 0.628 | 0.615 | 0.596 | 0.528 | 0.537 | 0.537 | 0.560 |
| 2 | Age 3 | 0.396 | 0.412 | 0.419 | 0.406 | 0.408 | 0.404 | 0.426 | 0.422 | 0.414 | 0.406 |
| 3 | Pcdi | 0.134 | 0.176 | 0.175 | 0.141 | 0.170 | 0.187 | 0.249 | 0.247 | 0.224 | 0.249 |
| | | Sums of Squares Explained by each Regressor Variable | | | | | | | | | |
| I | Private | 284.3 | 269.4 | 275.7 | 265.4 | 258.1 | 247.6 | 197.8 | 211.4 | 212.5 | 224.5 |
| 2 | Age 3 | 60.1 | 69.5 | 82.2 | 78.2 | 79.5 | 78.1 | 90.6 | 90.7 | 90.2 | 89.5 |
| 3 | Pcdi | 7.3 | 14.1 | 14.8 | 9.4 | 14.0 | 17.1 | 31.7 | 31.6 | 25.8 | 34.1 |
| | | Total Sums of Squares | | | | | | | | | |
| | | 475.9 | 480.4 | 500.4 | 500.5 | 503.2 | 506.2 | 515.3 | 529.1 | 530.2 | 554.3 |
| | | Sums of Squares Explained by each Variable as a Percentage of Total Sums of Squares | | | | | | | | | |
| I | Private | 59.7 | 56.1 | 55.1 | 53.0 | 51.3 | 48.9 | 38.4 | 40.0 | 40.1 | 40.5 |
| 2 | Age 3 | 12.6 | 14.5 | 16.4 | 15.6 | 15.8 | 15.4 | 17.6 | 17.1 | 17.0 | 16.1 |
| 3 | Pcdi | 1.5 | 2.9 | 3.0 | 1.9 | 2.8 | 3.4 | 6.2 | 6.0 | 4.9 | 6.2 |
| Summary Statistics | | | | | | | | | | | |
| Multiple Correlation Coefficient R | | 0.86 | 0.86 | 0.86 | 0.84 | 0.84 | 0.82 | 0.79 | 0.79 | 0.79 | 0.79 |
| Coefficient of Determination $R^2$ | | 74% | 73% | 74% | 70% | 70% | 68% | 62% | 63% | 62% | 63% |
| Durbin Watson d Value | | 1.68 | 1.78 | 1.84 | 1.83 | 2.04 | 2.09 | 2.25 | 2.41 | 2.40 | 2.39 |
| Conclusion based on d Value about Serial Correlation in the Residuals | | none | none | none | none | none | none | none | none | none | none |

absolute and relative contribution to explained variance. This net loss in explained variance is only in small part replaced by an increase in the contribution made by the two remaining regressor variables, principally by Pcdi. This discontinuity can be seen in Figure 5.1 to be related to the greater rate of decline in membership from 1967. This decline is a result rather of the decrease in the numbers of new communicants, which accelerated after 1964, than to the number of removals (Figure 5.2). Because the variable Pcdi was initially hypothesised to be related to the numbers of new communicants this possibly explains the increased contribution of this variable to explained variance in the late 1960s. It is also apparent from Figure 5.2 that since the number of removals decreased in the late 1960s they must have been less responsible for the decline in membership than they were previously. The smaller number of removals also suggests that the mobility of church members was declining in this later period in spite of the rising trend in national mobility indicated by Figure 5.5a. It is possible that the stock of church members who could contemplate a migration was diminishing and/or the membership was ageing so reducing its frequency of migration. Since the variable Private housing completions can be postulated to be a measure of mobility this could account for the smaller contribution to explained variance made by this variable in the late 1960s. In spite of these observations the model is still satisfactory for the period but the discontinuity would be significant if the model were to be required for forecasting.

(ii) By altering the order of entry of the variables Private and Age group 3 in the regression equation we can establish whether the former variable maintains its dominance throughout the

period and thus whether the equation as originally formulated is applicable throughout time. Attention is focussed upon the period from 1951 to 1961 because Table 5.7 indicates that it was in this period that Age group 3 showed its greatest fluctuation in contribution to explained variance. The results of the revised equation are shown in Table 5.9 and these can be compared to Table 5.7. The B coefficients in Table 5.9 show that the relative status of each regressor variable does not remain consistent throughout time. The absolute contribution to the sums of squares explained shows that the variable Private retains its status as principal explanatory variable. It is noticeable that when the variable Age group 3 takes first position in the equation, as in Table 5.9, it accounts for a good proportion of the sums of squares that were previously explained by private housing completions in first position, as in Table 5.7. In percentage terms the discontinuity of 1954 is even greater when these variables are rotated. On the whole, though, this test indicates no reason to revise the equation from its original form of Table 5.7 but if the model were to be used for forecasting purposes revision would be necessary.

(iii) The series can be extended at its extremities in order to establish whether the model is applicable to a wider time period. A time series analysis commonly involves the selection of a period for study on an arbitrary basis, often because of constraints posed by the available data. This study is no exception. The major consideration was that the period should not be influenced by the abnormal circumstances of the War years, 1939 to 1945, and those years of adjustment immediately afterwards. At the other end of the time scale an important consideration was that the results of

Table 5.9 - Results from Regression for the Church of Scotland 1951 - 71 with an Examination of the Series from 1951 - 61 and with the Variables Private and Age 3 in Revised Positions

| Position in Regression Equation | Regressor Variable | Date: 1951/2-70/I | 52/3-70/I | 53/4-70/I | 54/5-70/I | 55/6-70/I | 56/7-70/I | 57/8-70/I | 58/9-70/I | 59/60-70/I | 60/1-70/I |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Standardised Regression Coefficient B | | | | | | | | | |
| I | Age 3 | 0.406 | 0.405 | 0.393 | 0.205 | 0.199 | 0.108 | 0.131 | 0.174 | 0.242 | 0.196 |
| 2 | Private | 0.560 | 0.557 | 0.585 | 0.637 | 0.638 | 0.657 | 0.626 | 0.694 | 0.634 | 0.657 |
| 3 | Pcdi | 0.249 | 0.226 | 0.162 | 0.178 | 0.178 | -0.024 | -0.054 | 0.185 | 0.117 | 0.132 |
| | | Sums of Squares Explained by each Regressor Variable | | | | | | | | | |
| I | Age 3 | 142.7 | 142.4 | 128.2 | 53.3 | 53.1 | 7.3 | 8.2 | 7.3 | 14.4 | 1.4 |
| 2 | Private | 171.2 | 177.6 | 183.9 | 183.9 | 183.5 | 90.8 | 70.0 | 58.1 | 37.2 | 33.4 |
| 3 | Pcdi | 34.2 | 28.0 | 13.5 | 14.0 | 14.0 | 0.1 | 0.5 | 4.2 | 1.4 | 1.3 |
| | | Total Sums of Squares | | | | | | | | | |
| | | 554.3 | 553.8 | 522.8 | 447.2 | 446.6 | 212.3 | 179.1 | 124.2 | 103.2 | 86.4 |
| | | Sums of Squares Explained by each Variable as a Percentage of Total Sums of Squares | | | | | | | | | |
| I | Age 3 | 25.8 | 25.7 | 24.5 | 11.9 | 11.9 | 15.5 | 4.6 | 5.8 | 13.9 | 1.6 |
| 2 | Private | 30.9 | 32.1 | 35.2 | 41.1 | 41.1 | 42.8 | 39.1 | 46.7 | 36.0 | 38.6 |
| 3 | Pcdi | 6.2 | 5.1 | 2.6 | 3.1 | 3.1 | 0.1 | 0.3 | 3.4 | 1.3 | 1.6 |
| Summary Statistics | | | | | | | | | | | |
| Multiple Correlation Coefficient R | | 0.79 | 0.79 | 0.79 | 0.75 | 0.75 | 0.68 | 0.66 | 0.75 | 0.72 | 0.65 |
| Coefficient of Determination $R^2$ | | 63% | 63% | 62% | 56% | 56% | 46% | 44% | 56% | 52% | 42% |
| Durbin Watson d Value | | 2.39 | 2.37 | 2.47 | 2.47 | 2.23 | 2.78 | 2.26 | 2.35 | 2.38 | 2.28 |
| Conclusion based on d Value about Serial Correlation in the Residuals | | none | none | inconc-lusive | inconc-lusive | none | inconc-lusive | none | none | none | none |

this chapter be comparable to those of the next which can only extend to 1971. It is considered practical, at this stage of the analysis to limit the series only to the 1948-72 period. The regression results for this period are presented in Table 5.10 where attention is paid to the years from 1948 to 1961 since the earlier part of the series included the majority of additional years. The table shows that there are changes in the contribution made by the regressor variables for this longer time period; the contribution made by private housing completions to explained variance is reduced while the contribution made by Age group 3 is increased as compared to their role in the shorter series of Table 5.7. The fit for the entire series, 1948 to 1972, is not so good ($R^2$ = 55 per cent) as the fit for the 1951-1971 series ($R^2$ = 63 per cent) but the level of explanation remains useful. The model has remained valid for this wider time period but the addition of only a small number of years has caused a sizeable reduction in the level of statistical explanation and so possibly confirms the decision to omit from the series used those years which may be affected by post-War adjustment.

## 5.8 CONCLUSION

The analyses in this chapter have been executed to provide a partial statistical explanation for changes in the membership of certain Scottish denominations during the post-War period by using a relatively small number of observations and by removing the very strong time trends in the data. Although different variable

Table 5.10 - Results from Regression for the Church of Scotland 1948 - 1972 with an Examination of the Series from 1948 to 1961

| Position in Regression Equation | Regressor Variable | Date: 1948/9-71/2 | 49/50- | 50/I- | 51/2- | 52/3- | 53/4- | 54/5- | 55/6- | 56/7- | 57/8- | 58/9- | 59/60- | 60/1-71/2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Standardised Regression Coefficient B** | | | | | | | | | | | | |
| I | Private | 0.711 | 0.711 | 0.708 | 0.707 | 0.708 | 0.723 | 0.746 | 0.745 | 0.739 | 0.707 | 0.822 | 0.778 | 0.777 |
| 2 | Age 3 | 0.372 | 0.378 | 0.385 | 0.401 | 0.410 | 0.430 | 0.300 | 0.293 | 0.295 | 0.327 | 0.227 | 0.296 | 0.251 |
| 3 | Pcdi | 0.171 | 0.156 | 0.151 | 0.219 | 0.190 | 0.125 | 0.182 | 0.184 | -0.016 | -0.054 | 0.188 | 0.106 | 0.102 |
| | | **Sums of Squares Explained by each Regressor Variable** | | | | | | | | | | | | |
| I | Private | 207.3 | 207.6 | 209.1 | 195.4 | 200.8 | 200.8 | 178.9 | 179.8 | 84.6 | 64.4 | 58.0 | 41.4 | 31.6 |
| 2 | Age 3 | 95.7 | 98.9 | 102.0 | 112.7 | 115.0 | 109.2 | 58.1 | 56.7 | 15.3 | 14.7 | 9.7 | 10.5 | 5.2 |
| 3 | Pcdi | 15.3 | 12.5 | 11.8 | 24.3 | 18.1 | 7.4 | 12.1 | 12.3 | 0.0 | 0.4 | 3.5 | 0.8 | 0.6 |
| | | **Total Sums of Squares** | | | | | | | | | | | | |
| | | 582.4 | 581.9 | 581.9 | 555.7 | 555.2 | 523.5 | 447.3 | 446.7 | 214.3 | 180.0 | 126.6 | 104.5 | 88.7 |
| | | **Sums of Squares Explained by each Variable as a Percentage of Total Sums of Squares** | | | | | | | | | | | | |
| I | Private | 35.6 | 35.7 | 35.9 | 35.2 | 36.2 | 38.4 | 40.0 | 40.2 | 39.5 | 35.8 | 45.8 | 39.6 | 35.6 |
| 2 | Age 3 | 16.4 | 17.0 | 17.5 | 20.3 | 20.7 | 20.9 | 13.0 | 12.7 | 7.1 | 8.2 | 7.6 | 10.1 | 5.8 |
| 3 | Pcdi | 2.6 | 2.2 | 2.0 | 4.4 | 3.3 | 1.4 | 2.7 | 2.8 | 0.2 | 0.2 | 2.8 | 0.8 | 0.7 |
| **Summary Statistics** | | | | | | | | | | | | | | |
| Multiple Correlation Coefficient R | | 0.74 | 0.74 | 0.74 | 0.77 | 0.77 | 0.78 | 0.75 | 0.75 | 0.68 | 0.66 | 0.75 | 0.71 | 0.65 |
| Coefficient of Determination $R^2$ | | 55% | 55% | 55% | 60% | 60% | 61% | 56% | 56% | 47% | 44% | 56% | 50% | 42% |
| Durbin Watson d Value | | 2.05 | 2.03 | 2.00 | 2.18 | 2.19 | 2.41 | 2.46 | 2.22 | 2.78 | 2.24 | 2.46 | 2.48 | 2.25 |
| Conclusion based on d Value about Serial Correlation in the Residuals | | none | none | none | none | none | none | inconc-lusive | none | inconc-lusive | none | inconc-lusive | inconc-lusive | none |

combinations are found to be optimal for differing Churches, the three basic groups of age structure, socio-economic and mobility variables all seem to bear relationship to church membership. The greatest degree of explanation is achieved for the largest denomination, the Church of Scotland, and so attention has been focussed on this denomination. Lesser success is achieved for the Churches which have smaller total membership, and this possible reflects the fact that the smaller the denomination the more subject it will be to variation which cannot be encompassed by aggregate national variables.

As the earlier discussion of migration statistics has shown, there are other variables which would be relevant to the models that have been proposed in this chapter. Unfortunately, these data are often unsuitable for inclusion in a time series analysis. While figures for internal migration in Scotland do exist, they form a series of insufficient length. Other data are either simply unavailable, for example the figures for immigration to Scotland from the Republic of Ireland, or they are unquantifiable. Such phenomena as social mobility, political developments, the 'Billy Graham Crusades' in the mid-1950s and the impact of the Second World War cannt be assigned a numerical value.

The statistical determination of a relationship between church membership and those regressor variables which were available has been taken as confirmation of the initial hypotheses. However, any inferences of cause and effect that have been made rest upon the

validity of the initial hypotheses. Given this, the models do provide an alternative to, or at least a refinement of, the concept of secularisation to account for the varied nature of change in the membership of the various denominations in the post-War period.

Lastly, there are three considerations which must be borne in mind when judging the usefulness of this aggregate model. The first, and most important, is that the results of this analysis rest heavily upon the simplifying assumptions that were made with respect to time series. A second is the caveat that the models as they stand would not be suitable for forecasting; the discontinuities in the model for the Church of Scotland have been investigated in some detail. Perhaps it is more important that this analysis has made an attempt to explain what is happening so that forecasting might be based on more than an extrapolation of past trends in membership. The third caveat is that certain relationships may well be concealed within aggregate statistics. It it important, therefore that the results of these analyses be interpreted alongside the results from a spatial approach which is elaborated in the following chapter.

# CHAPTER VI

## A SPATIAL ANALYSIS OF CHURCH MEMBERSHIP FOR THE PERIOD 1951 - 71

# CHAPTER VI

## A SPATIAL ANALYSIS OF CHURCH MEMBERSHIP FOR THE PERIOD 1951 - 71

The previous chapter demonstrates that a temporal model of change in church membership can be derived. It offers refinements to the concept of secularisation which is not alone capable of encompassing the variety of change in membership. This chapter examines the nature of change in church membership by using data that are available within a spatial framework. Since the concept of secularisation lacks a spatial dimension, improvements will again be suggested.

Although, as the last chapter has shown, there have been marked changes in church membership during the post-War years, these changes have not been studied in any great detail. The only substantial attempts to examine a number of religious denominations in Scotland were those of Highet (1950 and 1960); the recent study by Currie et al. (1978) examines the church membership of the British Isles but for the most part neglects Scotland. All three studies have taken place at the national level. There have been only a few attempts to investigate membersnip at lesser scales, and these have focussed on a single denomination. For example, the Committee of Forty have reported for

the Church of Scotland (1975 in particular) and Spencer has studied the Catholic Church in Scotland (1969). It is quite apparent that while there has been increasing reference to, and concern with, the size of church membership its spatial distribution has been relatively neglected. This chapter focusses on this spatial dimension.

Such an examination is of significance because, in view of the vast amount of the Church's resources committed in terms of buildings and clergymen, the making and assessment of logistic decisions could be aided by a better understanding of the distribution of church membership and the processes that govern the pattern. There are normally two, and quite often three, levels of allocation which are of relevance to the Church. The first is the relative allocation of resources to the individual congregation which is best guided by the needs and initiative of the community which it serves, knowledge of which can best be gained through close study of the area involved. It is only in the case of a few denominations that the congregation is the sole unit of organisation recognised by the Church and expected to be totally self-sufficient.

The second is the total distribution of resources in the country as a whole. The scale of this problem varies with the size of the denomination, but the basic principle is the same; namely, to ensure an 'optimum' overall allocation. The definition of an optimum allocation is problematical, but the optimum does lie somewhere between an equitable provision as a social service and an efficient organisation. The problem is heightened in Scotland by the markedly unequal distribution of population throughout its area.

The third forms an intermediate level, that of the regional grouping which is, for example, in the Church of Scotland the Presbytery and in the Episcopal Church the Diocese. The regional grouping is often the most significant decision-making body and as such is the major instrument in the allocation process since it can effect a co-ordinated strategy within its bounds.

In many ways, however, the second level of allocation must be the first priority, for the overall distribution of resources will largely determine the success with which the first and third levels of allocation can be achieved. Since resources are for all denominations finite, and in the present economic situation under increasing pressure, a continuing review should be made of the relationship between supply and demand for church services, and adjustments in supply made accordingly. It is clear that the Church cannot reallocate its entire body of resources but it is continually presented with opportunities to make changes at the margin. With an understanding of the wider trends and patterns of church membership change the decisions that the Church takes could be guided towards a more efficient total disposition of resources and could be assessed in the light of this knowledge.

The objectives of this chapter, then, are to describe the pattern of church membership change throughout Scotland over a given time period and to attempt to explain the processes that govern the change. These are essential to the achievement of the objective of the next chapter which undertakes a critical examination of institutional reaction.

## 6.1 CHANGES DURING THE PERIOD

A summary of the strength of a range of Scottish denominations for the years 1951 and 1971 are shown in Table 6.1. The denominations are divided on the basis of size into three groups. The numerical dominance of the Church of Scotland is obvious, and would be even more so, were the figures for the Catholic population to be adjusted for comparability. Unlike other denominations the Catholic membership includes all baptised persons regardless of age and of whether or not they practise their faith. In 1971 there were 222,591 Catholic school pupils in Scotland (Scottish Education Statistics, 1971, p.204) who despite their youth in comparison with the members of other denominations would be recorded within the Catholic population. The Churches of groups I and II have had, with the notable exception of the Catholic Church, an overall decline in membership during the post-War years. The third group shows greater variety, and is subdivided into those Churches that have grown (IIIa) and those that have declined (IIIb). It must be emphasised that this third group is by no means complete, for there are a significant number of smaller denominations, especially those representing immigrant communities, for which no information is available. The list does, however, show the respective sizes of the better known denominations as well as those that have some central organisation capable of gathering such data. Similarly, there are a few omissions from the first and second groups, for example the Jewish community and the Brethern, for which data are not available.

Table 6.1

Membership and Congregations of Scottish Churches, 1951 and 1971

| Size Group | Denomination | Membership 1951 | Membership 1971 | Congregations 1951 | Congregations 1971 |
|---|---|---|---|---|---|
| I | Church of Scotland+ | 1271247 | 1133505 | 2378 | 2093 |
| | Roman Catholic Church | 745125 | 822800 | 506 | 617 |
| | Episcopal Church+ | 56382 | 47800 | 371 | 318 |
| II | Congregational Union | 35030 | 24671 | 151 | 118 |
| | United Free Church | 24556 | 16223 | 122 | 89 |
| | Baptist Church | 19760 | 16652 | 143 | 155 |
| | Methodist Church | 12971 | 10506 | 61 | 55 |
| | The Free Church+ | 10000 | 5500 | 166 | 147 |
| IIIa | The Mormon Church | 445 | 9127(1974) | 5 | 35 |
| | Jehovahs Witnesses | 2000* | 5700 | NR | 91 |
| | Elim Pentecostal | 700* | 1100 | 9 | 16 |
| | The Seventh Day Adventists | 350 | 413 | 9 | 9 |
| | The Society of Friends | 363 | 504 | 10 | 14 |
| | Church of the Nazarene | 788 | 1096 | 17 | 22 |
| | Free Presbyterian Church+ | 700 | 800 | 37 | 44 |
| IIIb | Reformed Presbyterian Church | 590 | 300 | 6 | 5 |
| | United Original Secession | 1926* | u | 18 | u |
| | Church of Christ (association) | 1818* | 1036 | 22 | 14 |
| | Unitarian Church | 1000* | 590(1967) | 4 | 4 |
| | Churches of God | 1200 | 1100 | 34 | 33 |
| | Apostolic Church | 772(1957) | 459 | 44 | 30 |
| | Church of the New Jerusalem | 403 | 160 | 3 | 2 |
| | Glasite Church | 27 | 11(1974) | 1 | 1 |

+ communicant members * official estimates obtained for 1950 by J. Highet

NR no record u - joined with the Church of Scotland in 1956.

Turning to population change over the period, the trend for Scotland as a whole (Table 6.2) has been one of gradual increase, giving a percentage growth rate between 1951 and 1971 of 2.3 as against a rate of 11.4 for England and Wales over the same period. The net loss by migration has played a substantial role in counteracting natural increase though the figures below give no indication of its spatial impact within Scotland or of change in the distribution of Scotland's population.

TABLE 6.2 POPULATION CHANGES IN SCOTLAND 1951 - 71 in 1000S

| | 1951 | 51-61 | 1961 | 61-71 | 1971 |
|---|---|---|---|---|---|
| Home population | 5102.5 | | 5183.8 | | 5217.6 |
| Change | | + 81.3 | | + 33.8 | |
| Natural increase | | +338.6 | | +343.1 | |
| Net migration * | | -281.6 | | -325.1 | |
| Other changes | | + 24.3 | | + 15.6 | |

Source: The Registrar-General, Scotland

* Estimated by the Registrar-General, Scotland.

Comparison of the aggregate trends in population (Table 6.2) and trends in church membership (Table 6.1) reveals an interesting dichotomy between them. However, it would be unwise to draw any final conclusion on the basis of these statistics in their simplest form without considering the possibility of spatial relationships at a less aggregate scale.

## 6.2 NATURE OF THE ANALYSES

The analyses are based on net population change and net church membership change between 1951 and 1971, and are designed to determine if there are in fact any relationships between population and church membership change. This is achieved by statistical comparison of the two, followed by an examination of the deviations from the comparison so that an explanation for the actual pattern of demand can be developed.

## 6.3 THE DATA

Ecclesiastical statistics vary greatly in their quality and availability. Although most denominations see no reason for secrecy, many either do not issue statistics or else produce them spasmodically. For those denominations for which statistics do exist the main concern is one of quality. Since the definition of membership varies widely between different denominations, statistics of membership are not strictly comparable. The most obvious example of the variation in definition is the Catholic Church. However, since the aim is not to compare the exact strength of each denomination, except for a simple relative classification, but rather to examine the spatial and temporal changes in the strength of each denomination selected variation in definition is not a significant problem. On the other hand, the realisation of definition is crucial to making any comparisons between the particular church population under study and the population as a whole.

Of all the denominations which issue statistics those of the Church of Scotland are the most detailed and comprehensive. For this reason, and becasue the Church of Scotland is the national Church with the declared aim of ministering to the entire population throughout Scotland, the emphasis of this chapter will again fall upon this Church. The data for the Church of Scotland have been obtained from the relevant editions of the Year-Book and Reports to the General Assembly, both of which are published annually for the period. As the size of a denomination decreases, the likelihood of its publishing statistics also decreases. In the case of the larger denominations data were gathered from the published Year Books while for the smaller ones enquiry was made, where possible, to the chief representatives of those denominations. A list of persons who supplied such information is included in the Appendices.

The main source for population data has been the decennial Census. There are several limitations inherent in this data source. The principal one is that the same range of information which is available for 1971 is not available for 1951 or 1961. The reason for this situation is that Enumeration District statistics are not available for 1951, and while they do exist for 1961 the boundaries of the districts used in this Census differ from those that were used in the 1971 Census. Moreover, there is no Civil Parish Summary (of Enumeration Districts) for 1961, as there is for 1971. Fortunately, both the 1951 and 1961 Census were published in the form of County Reports which are disaggregated for total population and sex into civil parishes, thus providing a means of comparison with 1971. Boundary changes in civil parishes are recorded for the

period, though with a few exceptions the small number of changes involved no great shifts in population. The civil parish framework that is employed in this analysis is that available in the mapping program[1].

A further limitation is that the Census material is not available on an annual basis with the result that it is not possible to observe fluctuations in the population trend over the period for civil parishes. An alternative source of population data which is available on a yearly basis is the Annual Report of the Registrar-General, Scotland. This gives data for the period which comprises total population, sex structure, births and deaths, but it has the major disadvantage of being aggregated into counties.

Likewise, the constraints that apply to the availability of data about basic demographic indices also apply to data about migration. A census survey was made for 1961 for persons whose address at Census was different from their address less than a year, one year, two to four years, and five to fourteen years, previously. This was repeated for 1966 and 1971 when migrants from one and five years previously were recorded. It must be noted that the figures which were obtained for these years are subject to error arising from the ten per cent sample on which they were based. The figures are disaggregated for counties into large and small burghs as well as

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[1] The boundaries used in the program (1966) were based upon the maps which were available at the time and their date of revision varies between 1951 and 1966.

landward areas which are further divided[1] into districts. A useful aspect of these data is the availability of tabulations of migrants by sex, age and socio-economic characteristics.

The annual reports of the Registrar-General in Scotland also include data on migration. However, prior to 1961 these were recorded only at the national level, and in the years after this by Planning Regions. A further possible source of migration figures is the National Health Service Central Register of Patients' Movements which gives annual data for migratory flows between executive council areas in Scotland. As F.H. Mitchell and L.C. Hunter (1976) recognise there are several shortcomings in the data. The figures not only lack demographic and socio-economic details that would assist interpretation of the flows, but also suffer from shortfall and lag in their recording. A more immediate limitation of these data is that they are only available in the form of executive areas, of which most are counties and the remainder are amalgamations of counties. If, however, these figures are treated as estimates of population movement, its direction and relative size, as opposed to exact data on migration then they are relevant to this analysis. At this juncture then it is important to emphasise that the results of the proceeding analyses can be interpreted only with reference to the constraints in the data described above.

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[1] with the exception of 1971

## 6.4 PATTERNS OF CHANGE

### (1) The Choice of Areal Unit

The civil parish has been chosen as the basic unit for analysis for two reasons:

(i) The availability of population data at a lower level of aggregation than the county or planning region.

(ii) It is a convenient means of aggregating data on individual congregations to achieve comparison with population data.

However, the selection of any areal unit implies a number of caveats for the geographer. In this case they can be stated as problems of size and of generalisation. The range of size of civil parishes is considerable (Figure 6.7), but the unequal distribution of Scotland's population means that it is impossible to divide it into homogenous units of population or area in any case. The unequal size of areal units can have an effect upon an analysis (Coppock, 1960) but since population and church membership totals are not determined by the area of the units it has less significance for the present study. Size does, however, have significant implications in terms of generalisation.

It is with respect to urban areas that the problem of generalisation occurs most frequently. A prominent example is Edinburgh where one civil parish represents the entire city, and so encompasses a variety of conditions within its bounds. Problems of generalisation are not, however, limited to the larger urban areas. The boundaries of the civil parish do not generally discriminate

between urban and rural portions of the landscape, and so a civil parish statistic often represents an aggregation of both. Equally there is need for care in the interpretation of church membership data in civil parish form since the spatial behaviour of church members does not necessarily conform to the boundaries of the civil parish. On the whole, though, the cross-flows of church members will average out over the country with one specific type of exception. Church members who swell the numbers in urban congregations regularly reside on the outskirts of these same areas. The result is that certain civil parishes which contain several urban congregations will record larger numbers of church members than they warrant, while neighbouring civil parishes will under-record their church membership.

The civil parish analysis can be executed in most detail for the Church of Scotland because it is the national Church, and in lesser detail for the Catholic and Episcopal Churches. Other denominations have fewer congregations (Table 6.1) and so a point analysis is more appropriate in such cases. In moving away from the areal unit as the basis for comparison between church membership and population the statistical sophistication that is possible in the analysis diminishes. As the emphasis is on the Church of Scotland it will be considered first in the analysis.

(2) Population Change and its Components

During the period 1951 to 1971 there was a marked spatial variation in population change in Scotland. The absolute changes in population for civil parishes in Scotland are shown in Figures 6.1 and 6.2. An explanation of these can be sought in two ways; trends

in the birth and death rates (standardised for age and sex) which lead to natural increase or decrease; and migration, both internal and external. Deaths are not, in themselves, a significant factor in explaining the regional trends in population while migration and natural increase (the excess of births over deaths) are important. Of these, according to the Scottish Development Department (1972), migration has, in general terms, been the principal factor involved in the spatial variation of Scottish population changes, except in the Borders where the low rate of natural increase is also very significant during the post-War period. So in seeking to interpret the maps of change in population three aids are available. One is the table of birth and death rates by county for Scotland (Table 6.3) for two sample years, 1961 and 1971. A problem is that these years reflect different conditions; namely, the 'boom' in births in the early 1960s and the relatively low numbers of births in the early 1970s. However, the problem is of less consequence in the context of this study since the intention is not to compare rates between different years but rather to use these rates to obtain estimates of natural increase or decrease for geographical comparison in two sample years. The remaining aids both relate to migration. The matrix of migration in Table 6.4 gives an indication of total turnover and direction of internal population movements. This is complementary to the map (Figure 6.3) of net internal and external migration by executive council area in Scotland. Both of these aids must be taken as estimates of population movement rather than a precise measure of migration especially since the results are constrained by the configuration of the boundaries of the 25 executive council areas and therefore tend to exclude short-distance migration.

Table 6.3 - Birth and Death Rates per Thousand of the Population, Standardised for Age and Sex, by County of Scotland, 1961 and 1971

| County | 1961[1] | | 1971[2] | |
|---|---|---|---|---|
| | Birth Rate | Death Rate | Birth Rate | Death Rate |
| Aberdeen | 17.2 | 11.2 | 15.5 | 10.9 |
| Angus | 18.4 | 11.3 | 15.7 | 11.0 |
| Argyll | 19.0 | 12.0 | 20.7 | 11.9 |
| Ayr | 18.5 | 12.6 | 15.5 | 12.4 |
| Banff | 20.9 | 11.1 | 19.3 | 11.1 |
| Berwick | 15.7 | 12.7 | 13.1 | 11.7 |
| Bute | 16.1 | 13.9 | 13.8 | 13.7 |
| Caithness | 25.2 | 10.2 | 18.8 | 8.8 |
| Clackmannan | 17.2 | 11.3 | 15.8 | 10.8 |
| Dumfries | 18.4 | 11.2 | 15.0 | 11.9 |
| Dunbarton | 20.1 | 11.9 | 17.8 | 10.3 |
| East Lothian | 16.6 | 12.9 | 14.3 | 11.9 |
| Fife | 17.1 | 11.9 | 14.5 | 11.3 |
| Inverness | 21.8 | 10.6 | 22.2 | 10.2 |
| Kincardine | 17.5 | 11.6 | 16.2 | 10.3 |
| Kinross | 17.5 | 12.4 | 15.1 | 12.0 |
| Kirkcudbright | 19.9 | 12.3 | 15.0 | 13.1 |
| Lanark | 21.2 | 13.8 | 17.2 | 13.4 |
| Midlothian | 18.6 | 12.0 | 15.9 | 11.3 |
| Moray | 20.5 | 9.6 | 19.3 | 10.3 |
| Nairn | 18.4 | 11.0 | 17.7 | 13.0 |
| Orkney | 17.0 | 10.9 | 14.7 | 10.1 |
| Peebles | 17.7 | 13.1 | 14.8 | 11.1 |
| Perth | 18.1 | 11.3 | 16.5 | 11.3 |
| Renfrew | 20.6 | 12.9 | 16.8 | 11.5 |
| Ross and Cromarty | 23.1 | 9.9 | 22.5 | 9.7 |
| Roxburgh | 17.2 | 12.8 | 16.4 | 11.3 |
| Selkirk | 16.4 | 12.5 | 18.8 | 12.0 |
| Stirling | 18.6 | 12.1 | 16.4 | 11.9 |
| Scotland | 19.5 | 12.3 | 16.6 | 11.8 |

1. Annual Report of the Registrar - General for Scotland, 107, 1961 Table 7, pp. 104 - 109.

2. Ibid., 117, 1971, Table P 2.1, pp. 56 - 58.

# Table 6.4 – Internal Migration in Scotland between 25 Executive Areas for the whole Period 1955-71

| Code | Area of Origin | Area of Arrival | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AB | AK | AN | AR | BM | CN | DB | DF | FF | GY | IN | LP | LR | OR | PK | RC | RN | RS | SC | SD | ZT | ABD | DEE | EDB | GLW |
| 1 | Argyll and Bute | | 736 | 408 | 5551 | 686 | 191 | 5154 | 575 | 1574 | 495 | 2688 | 1264 | 2699 | 81 | 2618 | 767 | 5519 | 507 | 2038 | 269 | 92 | 519 | 400 | 2037 | 9541 |
| 2 | Aberdeen and Kincardine | 759 | | 8504 | 1027 | 11113 | 581 | 961 | 557 | 5570 | 275 | 2354 | 1666 | 1447 | 369 | 4023 | 1242 | 873 | 722 | 1551 | 339 | 334 | 23623 | 1578 | 3199 | 2091 |
| 3 | Angus | 459 | 5575 | | 669 | 1924 | 288 | 654 | 295 | 5456 | 204 | 664 | 1445 | 1259 | 72 | 9643 | 521 | 859 | 501 | 1201 | 112 | 59 | 1987 | 9419 | 2329 | 1874 |
| 4 | Ayr | 2281 | 822 | 556 | | 704 | 559 | 5413 | 4075 | 2955 | 4489 | 1050 | 5984 | 8822 | 70 | 2072 | 415 | 9163 | 889 | 2920 | 97 | 76 | 1047 | 971 | 5027 | 13779 |
| 5 | Banff, Moray and Nairn | 699 | 11162 | 2197 | 917 | | 579 | 752 | 309 | 2287 | 252 | 5054 | 1409 | 1218 | 194 | 2087 | 1911 | 937 | 481 | 1092 | 448 | 139 | 6758 | 914 | 3305 | 2312 |
| 6 | Caithness | 202 | 574 | 220 | 415 | 451 | | 217 | 115 | 522 | 59 | 844 | 405 | 557 | 296 | 551 | 903 | 232 | 134 | 245 | 654 | 136 | 754 | 225 | 1169 | 635 |
| 7 | Dunbarton | 2659 | 668 | 617 | 4545 | 731 | 286 | | 679 | 5452 | 447 | 1181 | 2262 | 8581 | 75 | 2071 | 487 | 5694 | 409 | 5790 | 82 | 50 | 877 | 852 | 2687 | 22192 |
| 8 | Dumfries | 470 | 594 | 244 | 4739 | 252 | 155 | 839 | | 895 | 7042 | 566 | 2240 | 2725 | 53 | 697 | 150 | 1048 | 1957 | 793 | 67 | 14 | 298 | 359 | 2996 | 3004 |
| 9 | Fife | 1295 | 2525 | 4737 | 3027 | 1516 | 530 | 2990 | 842 | | 553 | 1459 | 7622 | 5661 | 148 | 12954 | 662 | 2643 | 1550 | 7590 | 227 | 216 | 2414 | 7201 | 14350 | 5901 |
| 10 | Galloway | 495 | 256 | 156 | 6029 | 171 | 62 | 477 | 9445 | 601 | | 237 | 1076 | 1446 | 52 | 528 | 78 | 774 | 776 | 676 | 54 | 39 | 190 | 228 | 1713 | 2021 |
| 11 | Inverness | 2661 | 1927 | 791 | 1165 | 4377 | 715 | 1135 | 570 | 1512 | 208 | | 1516 | 1449 | 164 | 2921 | 5765 | 1126 | 378 | 1241 | 962 | 115 | 2559 | 813 | 3690 | 5682 |
| 12 | Lothians and Peebles | 1052 | 1280 | 1157 | 3637 | 1070 | 353 | 2064 | 1550 | 7409 | 798 | 1478 | | 9618 | 169 | 2810 | 633 | 2511 | 6288 | 7880 | 181 | 119 | 1160 | 1139 | 39233 | 5079 |
| 13 | Lanark | 3041 | 1345 | 1285 | 13521 | 1072 | 458 | 9417 | 2818 | 6758 | 1230 | 1550 | 12693 | | 76 | 3054 | 688 | 10321 | 1524 | 7101 | 237 | 65 | 1717 | 1706 | 7230 | 36151 |
| 14 | Orkney | 184 | 820 | 117 | 118 | 514 | 698 | 116 | 55 | 511 | 58 | 261 | 388 | 121 | | 193 | 524 | 97 | 134 | 144 | 205 | 207 | 704 | 83 | 945 | 228 |
| 15 | Perth and Kinross | 2331 | 2571 | 8748 | 2155 | 1446 | 575 | 1853 | 747 | 13527 | 475 | 2416 | 5205 | 2986 | 106 | | 956 | 1654 | 1058 | 7622 | 311 | 77 | 1832 | 6685 | 6723 | 4836 |
| 16 | Ross and Cromarty | 865 | 1385 | 528 | 458 | 1709 | 656 | 590 | 176 | 693 | 129 | 6795 | 759 | 719 | 149 | 1253 | | 602 | 313 | 607 | 1270 | 61 | 1604 | 283 | 2162 | 3255 |
| 17 | Renfrew | 4043 | 1144 | 857 | 12909 | 924 | 315 | 5957 | 1143 | 2954 | 734 | 1204 | 2614 | 9242 | 99 | 1887 | 500 | | 565 | 2918 | 122 | 58 | 1138 | 1314 | 4092 | 23569 |
| 18 | Roxburgh and Selkirk | 467 | 491 | 393 | 1180 | 418 | 141 | 518 | 1904 | 1799 | 658 | 595 | 8723 | 1726 | 43 | 1256 | 207 | 545 | | 1096 | 99 | 61 | 413 | 341 | 7311 | 1288 |
| 19 | Stirling and Clackmannan | 1393 | 1075 | 1050 | 3006 | 755 | 272 | 5158 | 787 | 6664 | 475 | 1140 | 7171 | 5833 | 50 | 5968 | 494 | 2427 | 711 | | 125 | 69 | 1179 | 1289 | 6700 | 7916 |
| 20 | Sutherland | 263 | 551 | 105 | 126 | 478 | 979 | 115 | 47 | 245 | 54 | 1151 | 207 | 162 | 90 | 546 | 1690 | 90 | 94 | 221 | | 29 | 591 | 83 | 576 | 467 |
| 21 | Zetland | 123 | 464 | 95 | 101 | 149 | 215 | 51 | 23 | 306 | 40 | 127 | 120 | 62 | 221 | 131 | 95 | 59 | 54 | 105 | 30 | | 895 | 85 | 943 | 158 |
| 22 | Aberdeen City | 580 | 21872 | 2102 | 1093 | 4294 | 701 | 1269 | 448 | 2552 | 199 | 2045 | 1555 | 2134 | 350 | 1959 | 874 | 1554 | 373 | 1502 | 274 | 471 | | 2398 | 5604 | 4177 |
| 23 | Dundee | 402 | 1386 | 5958 | 899 | 723 | 260 | 1076 | 349 | 7612 | 150 | 722 | 1455 | 1856 | 43 | 5553 | 274 | 1371 | 592 | 1366 | 116 | 76 | 2122 | | 4293 | 3341 |
| 24 | Edinburgh | 1677 | 2332 | 2003 | 3801 | 2601 | 961 | 3330 | 2343 | 13436 | 1268 | 3093 | 51996 | 7027 | 509 | 4865 | 1599 | 3844 | 5687 | 6006 | 479 | 717 | 4392 | 3813 | | 9596 |
| 25 | Glasgow | 10832 | 1974 | 3130 | 28434 | 2192 | 1151 | 68915 | 5457 | 9601 | 1896 | 5565 | 14745 | 91110 | 205 | 5476 | 2715 | 59820 | 2112 | 14940 | 536 | 161 | 3823 | 4113 | 10627 | |

Note : The areas of arrival are abbreviated . They are the same , and in the same order , as the areas of origin .

Source : The National Health Service Central Register of patients' movements . Data were provided by the Registrar - General , Edinburgh , in the form of annual figures from 2/55 to 2/71 .

An examination of the maps of absolute change in population reveals the predominance of civil parishes that have experienced decline over those that have grown in population. Since the total Scottish population increased over the period this means that this net increase, and the growth in population necessary to compensate for decline elsewhere in Scotland, must have been highly spatially concentrated. In fact, such growth occurred in approximately one quarter of the civil parishes of Scotland.

The civil parishes that have grown are located mainly in the Central Lowlands (Figure 6.1). Within this area it is possible to distinguish several regional groupings. In West Central Scotland areas of increase radiate from Glasgow, reflecting overspill into the New Towns of Cumbernauld, East Kilbride and Irvine, and the increasing suburbanisation of the population to the north and south of the city. The result of these movements is that the city itself has experienced a major fall in population. As can be seen from Figure 6.3, the counties in the West have had high net emigration. But again most of this can be ascribed to Glasgow. These losses are, however, compensated for to a large extent by the relatively high rates of natural increase in the counties of West Central Scotland (Table 6.3). It is also apparent that Dunbarton and Ayr counties have experienced significant growth associated with new residential development. Lanark county has experienced similar growth but much of this is balanced by a high net emigration.

In the middle portion of the Central Lowlands, the Falkirk - Stirling region, the urban parishes of Falkirk and Stirling have

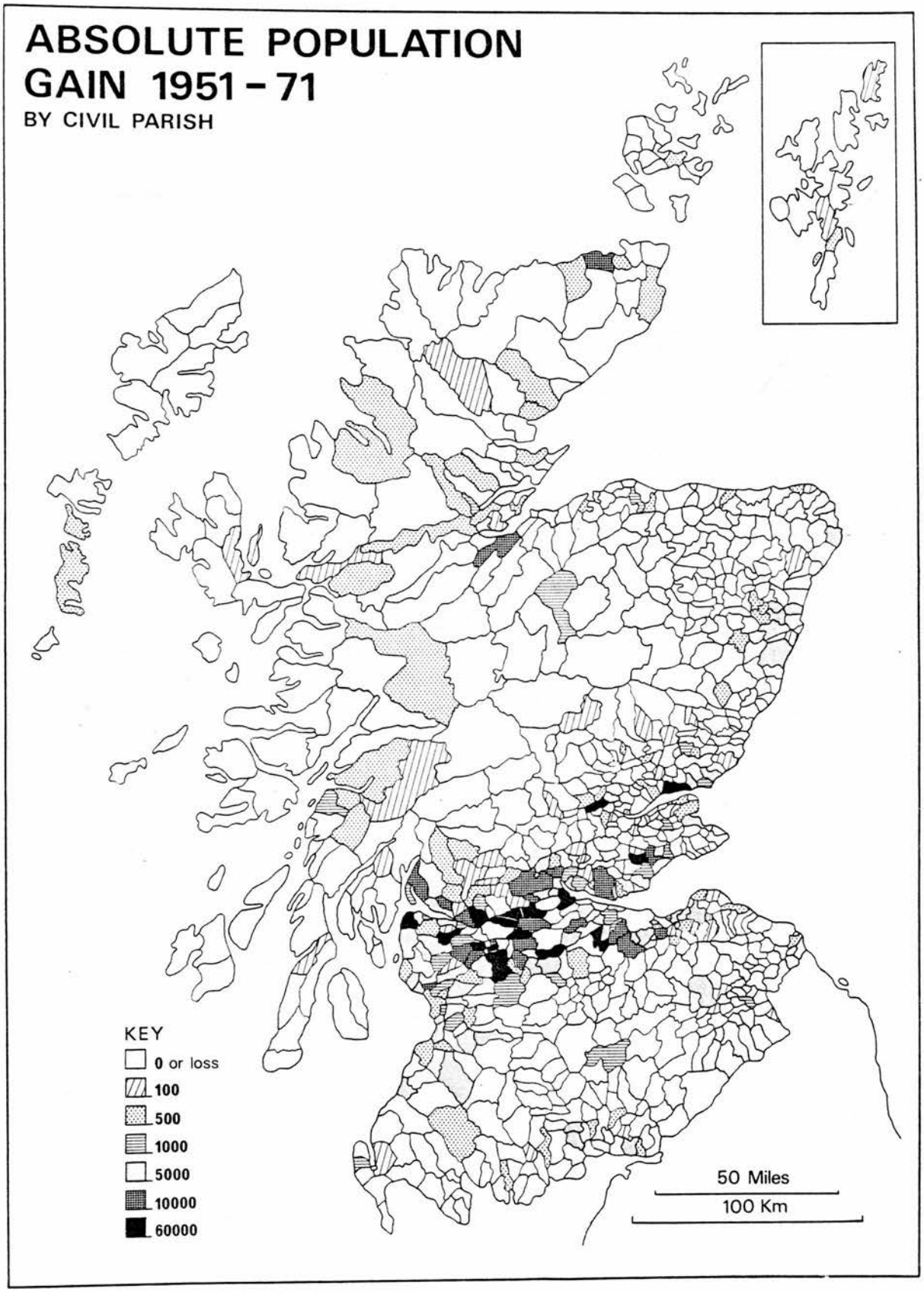
ABSOLUTE POPULATION
GAIN 1951 - 71
BY CIVIL PARISH
KEY
0 or loss
100
500
1000
5000
10000
60000
50 Miles
100 Km

Figure 6.1

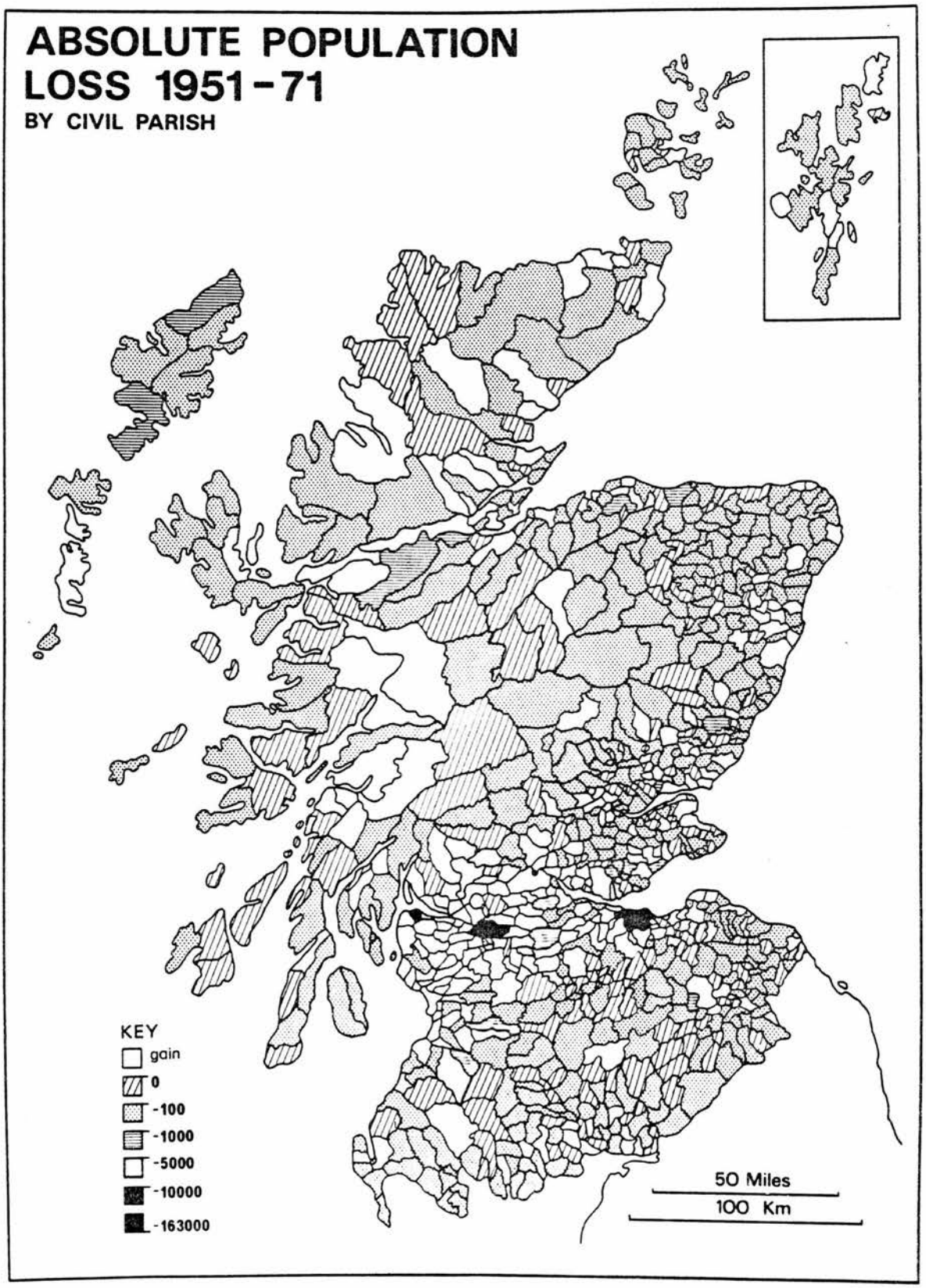
ABSOLUTE POPULATION
LOSS 1951-71
BY CIVIL PARISH
KEY
gain
0
-100
-1000
-5000
-10000
-163000
50 Miles
100 Km

Figure 6.2

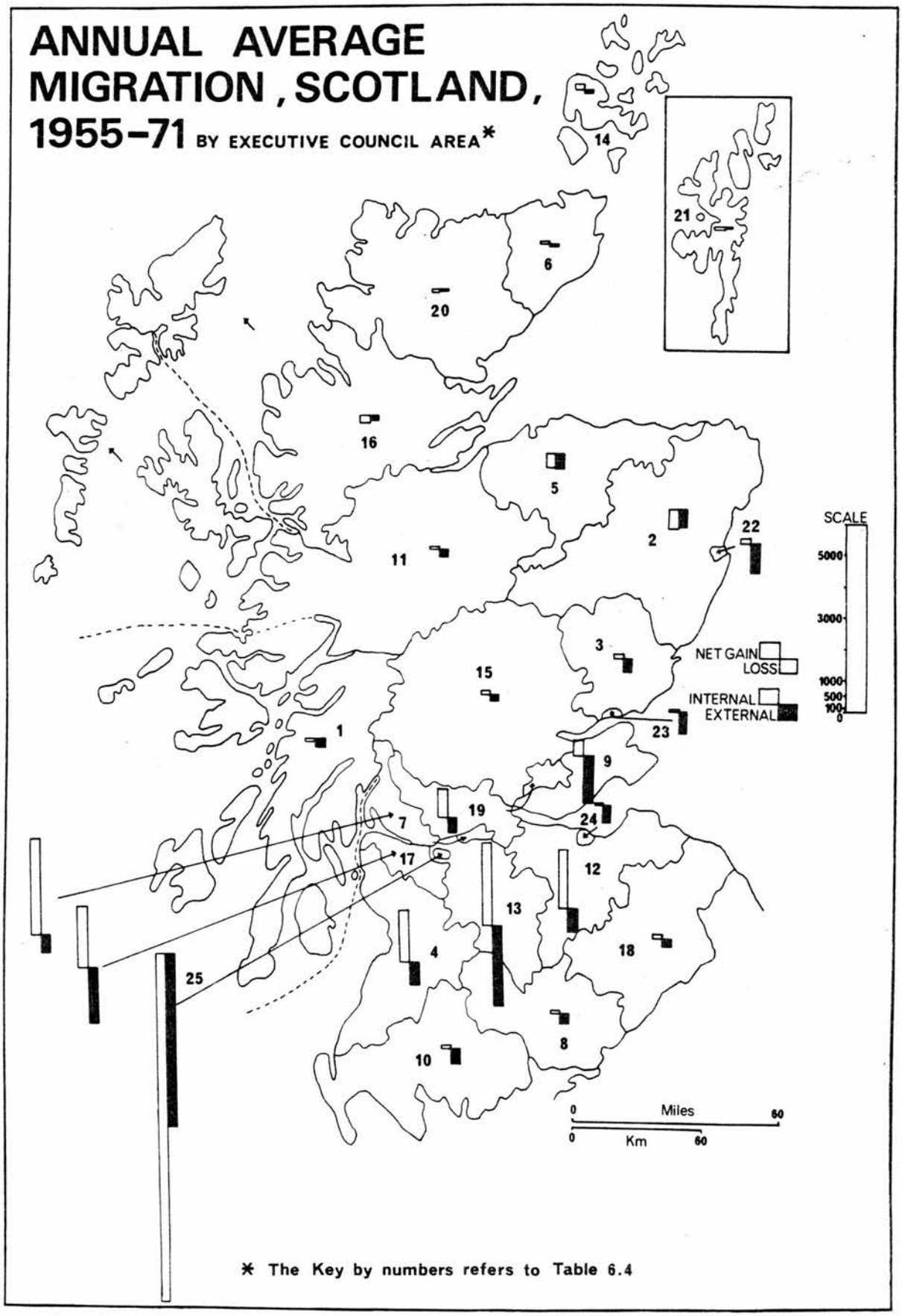
ANNUAL AVERAGE MIGRATION, SCOTLAND, 1955–71 BY EXECUTIVE COUNCIL AREA*
SCALE
5000
3000
1000
500
100
0
NET GAIN
LOSS
INTERNAL
EXTERNAL
Miles
0
60
Km
0
60
* The Key by numbers refers to Table 6.4

Figure 6.3

declined, but there have been several large population gains in the surrounding civil parishes. As can be seen from Figure 6.3 the executive area of Stirling and Clackmannan has been one of the few in Scotland not to have experienced a net migration loss. Similarly, the trends in the Lothian and Peebles executive area are those of gain. Both of these executive areas have gained from internal migration from the rest of Scotland, associated with new residential growth because of commuter development and employment opportunities from industrial expansion. The urban parish of Edinburgh has shown a decline though, being the principal contributor in the region to migration loss to the rest of the United Kingdom and overseas. The many small gains made by Edinburgh from other parts of Scotland have been counteracted by a large loss by decentralisation of population to its periphery in the Lothian and Peebles executive area (Figure 6.3). There are many civil parishes to the west and north of Edinburgh which have gained population in response to industrial expansion and the New Towns of Livingston and Glenrothes. Further growth in civil parishes to the east of Edinburgh is a result of population movements associated with commuter development.

Outwith the Central Lowlands the few civil parishes that have experienced growth are dispersed overall, but individually tend to occur in clusters. The most obvious clusters are in the Lochaber and Oban areas as well as in their north eastern counterparts of the Moray Firth and Inverness areas. All of these areas have gained from migration in response to their industrial expansion. Elsewhere in Scotland outwith the Central Lowlands the gains have occurred in urban areas and more often on their outskirts. These include in the north; areas adjacent to Aberdeen, Elgin and Perth; and Dundee and

its surrounds. But the gain to Dundee is larger than it should be in that over half of its gain represents the addition of population by a boundary change in favour of the civil parish of Dundee. In the south, gains have occurred in Melrose and around Dumfries. The gains reflect migration to these centres and increasing growth on their peripheries.

Over the larger part of the country, civil parishes have declined in population. The larger absolute decreases often occurred in urban parishes and, apart from those already mentioned in the Central Lowlands, these were Elgin, Perth and Brechin civil parishes in the north; and Dalmellington, Auchinleck and Galashiels civil parishes in the south. Despite the prominence of these areas in decline there has been a more widespread trend of depopulation in many of the civil parishes in the North East and North West, where there have been net internal and external migration losses (Figure 6.3), and in the South West and Borders where there have been only small gains in internal migration and larger losses through external migration (Figure 6.3). The fall in population of the Borders, more than the other areas, is also explained by the low rate of natural increase for the counties of Berwick, Selkirk, Roxburgh and Peebles (Table 6.3).

The overall effect of population change in the period is summarised in Table 6.5. The large decline in the population of the four major cities column is mainly due to Glasgow. The paradoxical increase in landward population from 1961 is the result of urban expansion into surrounding areas. The most important point is that the population of large and small burghs, but especially small burghs,

has grown substantially between 1951 and 1971. This emphasises the earlier observation that there may be a distinction between the urban and rural components of a civil parish that the civil parish as a unit will conceal.

TABLE 6.5 A CLASSIFICATION OF THE SCOTTISH POPULATION

| Date | Total Population | Cities | Large Burghs | Small Burghs | Landward |
|---|---|---|---|---|---|
| 1951 | 5,096,415 | 1,926,903 | 828,389 | 817,623 | 1,523,500 |
| 1961 | 5,179,344 | 1,900,945 | 937,184 | 931,963 | 1,409,252 |
| 1971 | 5,227,706 | 1,714,470 | 953,507 | 1,036,705 | 1,523,654 |

(3) Change in the Membership of the Church of Scotland

Against a background of decline in national communicant membership since 1956 there is a considerable spatial variability in the pattern of membership change at the civil parish level. Before examining this pattern the mechanics of the allocation of church members to civil parishes should first be noted. On the whole this was easily achieved except in the cases where a union of congregations from different civil parishes had taken place. If this union had taken place well before 1951 the membership of the united congregation was allocated to the two civil parishes on the basis of their respective populations in 1951 and 1971. If the union took place after 1951 then the membership of the united congregation was allocated for 1971 to the civil parishes containing the previously separate congregations in proportion to their membership in the year immediately preceeding union. If there was

doubt about the partners in any union this was clarified by inquiry to the Clerks of the relevant Presbyteries; a list of those who assisted is given in the Appendices.

The pattern of change is shown as a percentage of 1951 church membership by civil parish in Figure 6.4. The parishes that grew over the period were again approximately one quarter of the total number. Because of the nature of percentage figures more emphasis is given to rural areas which have only experienced small absolute changes that are only large relative to their small total population. The absolute changes in membership are shown in Figures 6.5 and 6.6. The dominance of urban areas in accounting for the greatest declines, and of their environs in showing growth, is revealed most clearly in the maps of absolute change. At the same time the large number of civil parishes which have experienced decline, albeit small in size, is also obvious. The maps of percentage change and absolute change can be seen as being complementary.

There are three basic components to these changes in membership. They are; deaths of existing members, new communicants (admissions on profession) and lapsing (a gain or loss representing the difference between removals with or without certificate and admissions by certificate and resolution). The death rate shows no significant change over the period; in 1951 it was 1.7 per cent of the total membership and in 1971 it was 1.8 per cent and in neither year was any spatial bias apparent. The previous chapter demonstrated that the decline in new communicants, and the increase in loss through lapsing, have been jointly significant in causing the overall decline in the national membership of this Church. This examination also

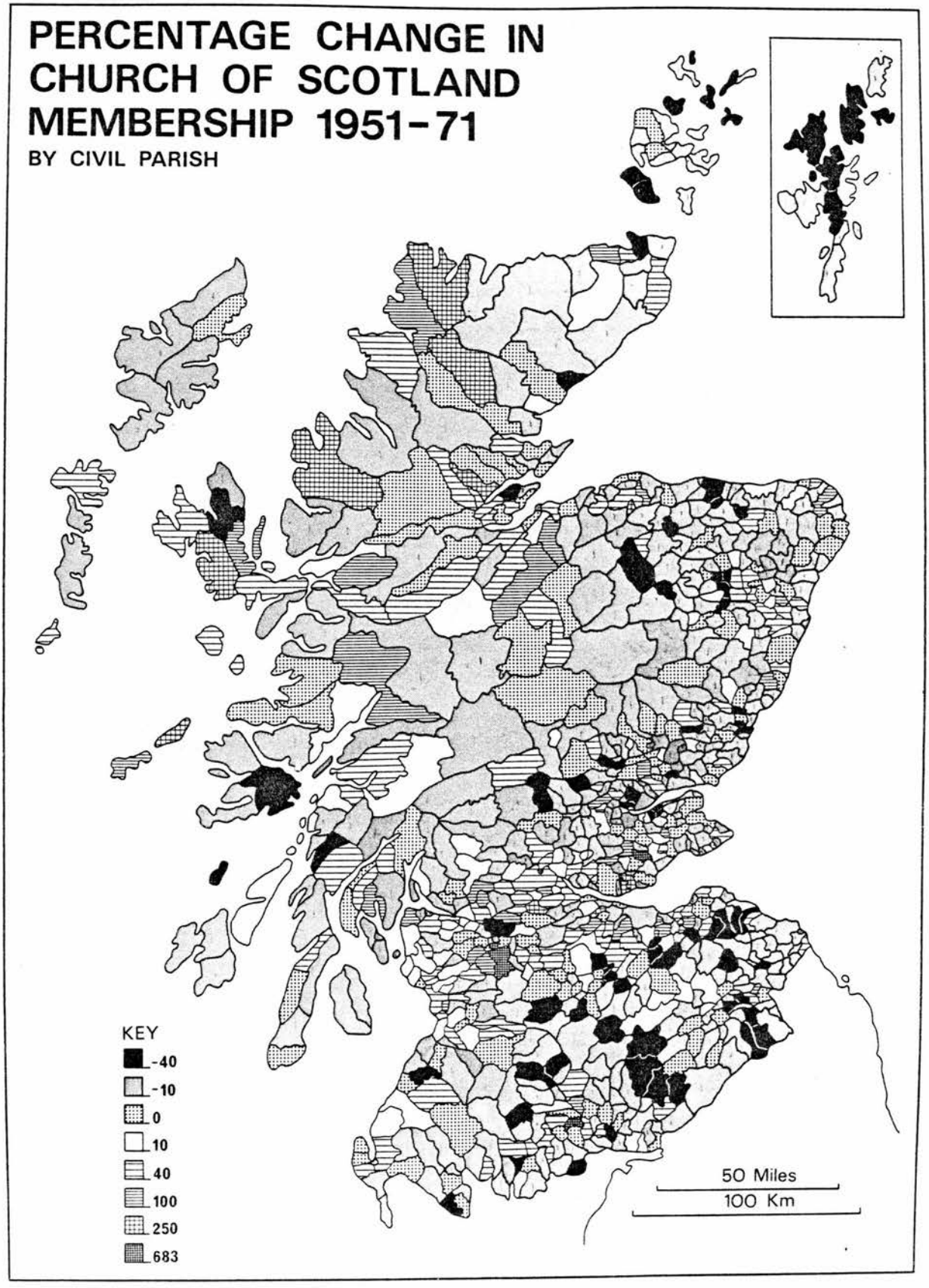
PERCENTAGE CHANGE IN CHURCH OF SCOTLAND MEMBERSHIP 1951-71
BY CIVIL PARISH
KEY
-40
-10
0
10
40
100
250
683
50 Miles
100 Km

Figure 6.4

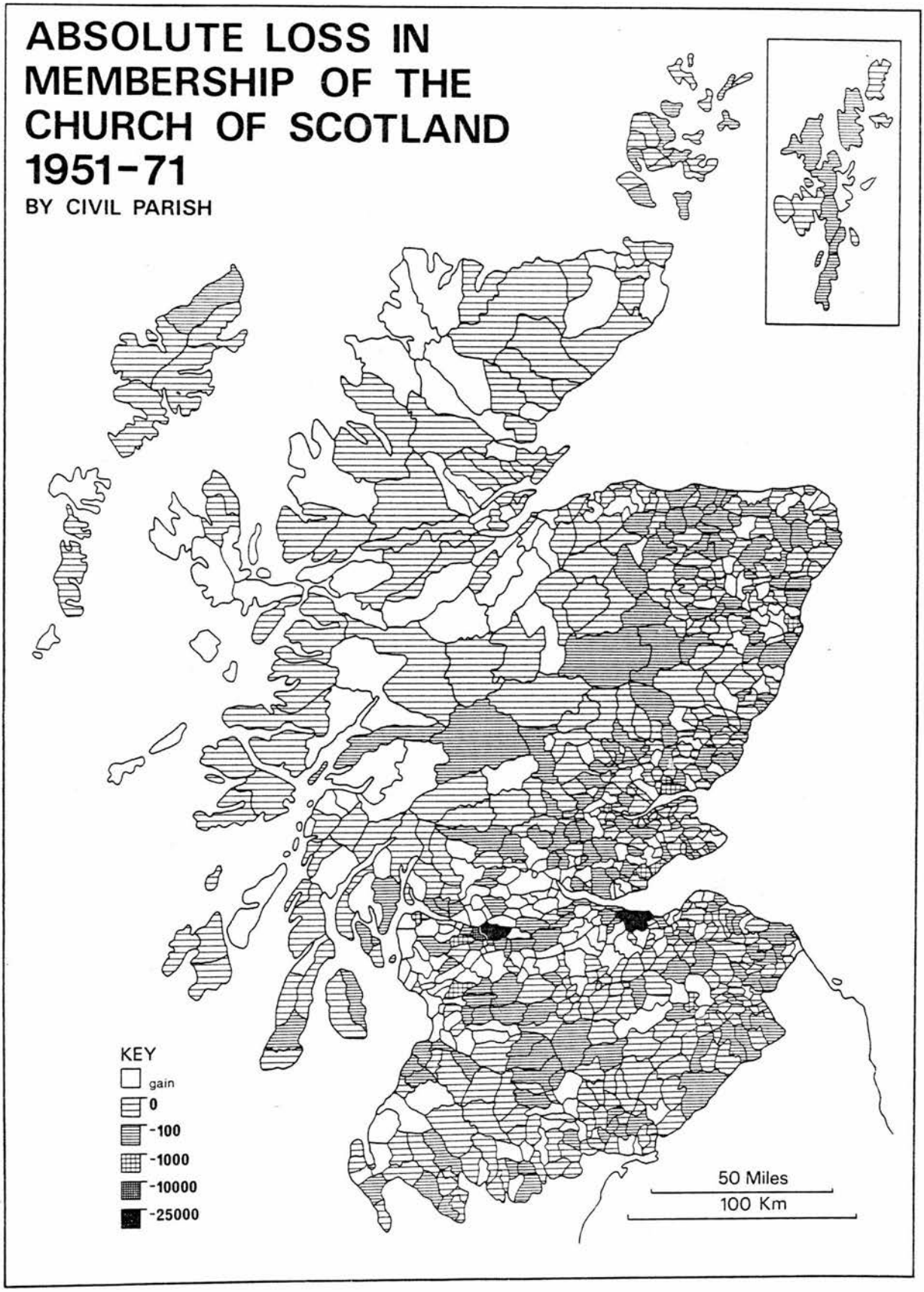
ABSOLUTE LOSS IN MEMBERSHIP OF THE CHURCH OF SCOTLAND 1951-71
BY CIVIL PARISH
KEY
gain
0
-100
-1000
-10000
-25000
50 Miles
100 Km

Figure 6.5

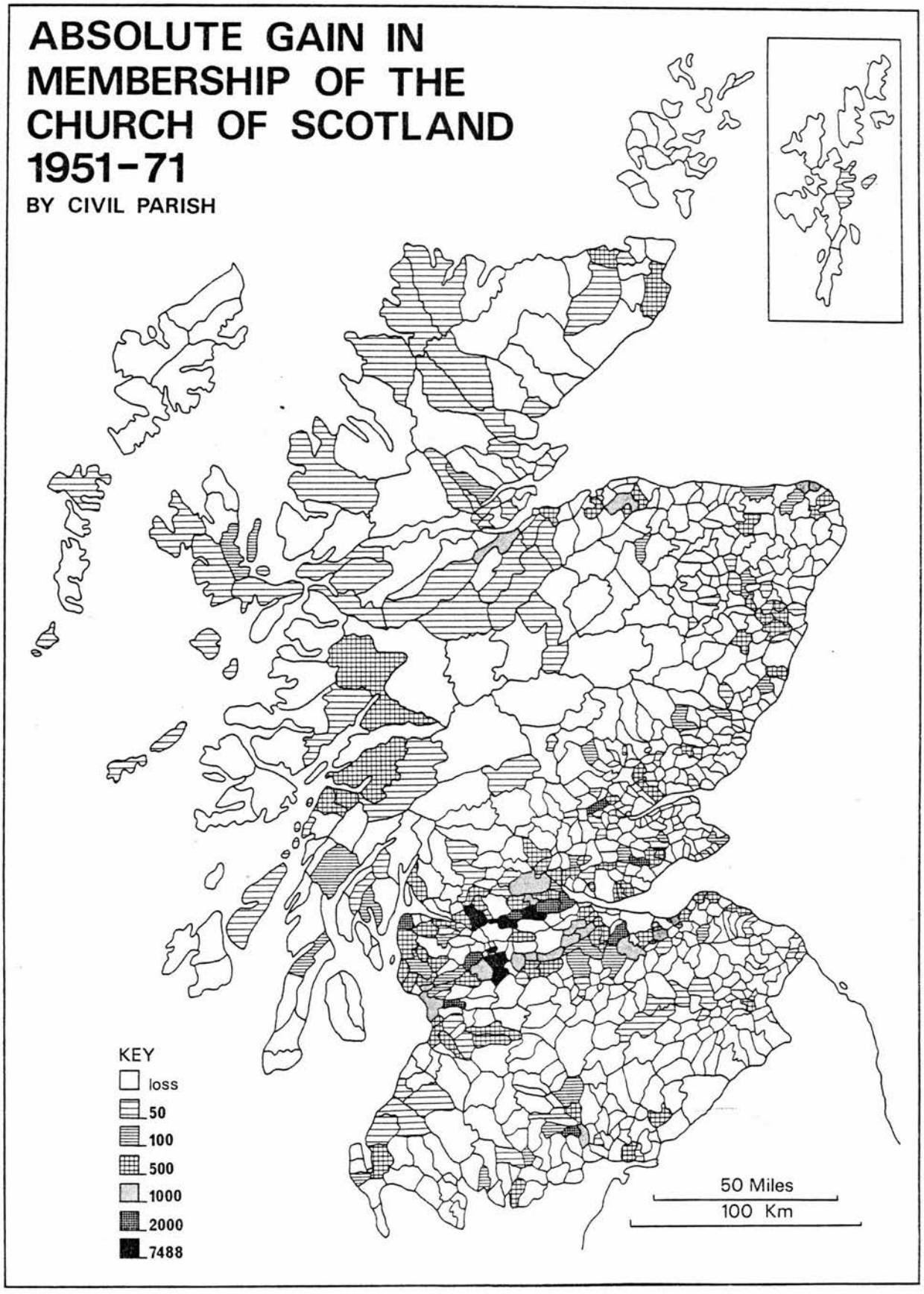
ABSOLUTE GAIN IN MEMBERSHIP OF THE CHURCH OF SCOTLAND 1951-71
BY CIVIL PARISH
KEY
loss
50
100
500
1000
2000
7488
50 Miles
100 Km

Figure 6.6

demonstrated the important part played by mobility in at least being associated with lapsing. The relative interplay of these three components gives the resultant changes in membership of the Church in any one area.

Other than at the national level, such details are available for the Church of Scotland only at the Presbytery level. The Presbyteries are represented as aggregations of civil parishes (Figure 6.7, p.193 ). A visual examination of the trends[1] in the three variables for each Presbytery suggests that, in broad terms, from 1951 to 1971, rural decline is associated with small numbers of new communicants in excess of deaths in the more outlying Presbyteries, and in others by a relatively strong loss by lapsing. Rural increase is often associated with lapse gain (where admissions exceed removals). In contrast, urban decline is associated with large declines in new communicants from initially high levels as well as heavy losses through lapsing. Urban Presbyteries with increasing memberships are associated with well maintained levels of new communicants for most of the period and with low losses by lapsing.

While it is tempting to speculate on the relationships of these various trends in membership to population change, it is more useful to first establish the nature of the statistical relationship between church membership and population as a whole, and then, in

---

[1] These were examined, for each Presbytery, by means of a graphical method as in Figure 6.8 (p.196 ) using data from the annual Reports to the General Assembly. New communicants are compared directly with deaths as input and output respectively to the stock of members, and the lapse component is viewed separately as a modifying factor.

the light of this and the deviations from the relationship, to examine the components of church membership and population change to see whether a link exists. The methods employed to examine the relationship are based on parametric correlation and on regression techniques.

Since regression methods will be used on several occasions in the analyses which follow, mainly for the Church of Scotland, and since the review of regression methods in the previous chapter dealt with their application in a time series context it is apposite to examine at this stage the assumptions that their use entails in a spatial analysis.

(4) Assumptions of Regression Methods

Parametric correlation assumes that both variables have come from normally distributed populations, but socio-economic data seldom meet this restricting assumption. The data used in this study are no exception, and so transformation of the data to near normality has been necessary. But regression relies upon many more assumptions than correlation. These assumptions have been stated in detail by Poole and O'Farrell (1971) and have been subsequently well quoted in geographical texts, for example by Taylor (1977, pp.215-219). Although Poole and O'Farrell's work must form the basis for a regression analysis, it seems that they have been influenced by the presentation of these assumptions in econometrics, and so their rendition of the assumptions of the linear regression model must be viewed carefully in a given geographical context. The assumptions are:

(i) Each value of the regressor variable(s) and of the response variable is observed without measurement error. This assumption is of major importance only for the regressor variable(s). Since these are, in this study, obtained from the national Census it is permissible to consider the assumption as having been satisfied. The assumption can be relaxed for the response variable. Since this variable is in all cases church membership, which is aggregated from local returns, it is conceivable that errors may occur in its measurement. There is no reason to believe that these errors will be other than random and as such will be averaged out and incorporated in the residuals: but there is a flaw in this argument because of the particular significance of the adherent to the Church of Scotland in the North West and Islands of Scotland. In these areas there is a long-rooted tradition of not becoming a full member (communicant) because of a feeling of unworthiness, until perhaps at a later age. As a result these people are not officially recorded for the published statistics, even though they adequately fulfil the duties of membership (except that they are not permitted to attend Communion). There is no reason to believe that this practice or its spatial concentration has greatly diminished over the period. Consequently it is probable that percentage change figures are underestimated for these areas of Scotland since change in adherents representing the more mobile younger age groups will not be included in the figures. The effect upon the absolute figures of church membership change will not be so great for, even with the inclusion of adherents, these changes would still be small in comparison with other areas with larger church populations. Since no accurate statistics exist for adherents no adjustment, other than an arbitrary one, can be made. The existence of this error must be recognised in interpretation of the residuals.

(ii) The form of the function must correctly express the relationship between the response and regressor variables. In this study a simple linear function is used, and the scatter graph of the response variable against each regressor variable has been used to check for a linear trend. This is especially important since the transformation of variables, which is necessary in this analysis, may result in a change in the form of relationship. A check for linearity has been carried out before and after transformation. To a certain extent this was made difficult by the wide spread of observations but the transformation of variables caused only small changes in $R^2$.

Assumptions (iii), (iv) and (vi) all concern the 'disturbance' term. This is described by Poole and O'Farrell in the general linear regression model of the form:

$$Y = a + \sum_{i=1}^{k} b_i x_i + u$$

(where Y is the response variable, $x_i$ is k regressor variables, and a and $b_i$ are the regression coefficients) as u, which may be interpreted as:

> . . . resulting from the effect of unspecified regressor variables and/or a totally random element in the relationship specified (1971, p.147).

Since the disturbances are unobservable it is permissible to use the residuals as an estimate for them. The direct examination of the residuals in order to check for compliance with assumptions (iii) and (vi) involves a search for visible patterns, and so the standardised residuals have been plotted in scattergram form (a facility of the computer package used - SPSS) against the standardised predicted

response variable. These scatter graphs were then examined for patterns which would suggest violation of these assumptions. If such abnormalities were to be suspected it would then be necessary to investigate more closely the nature of the relationship to the regressor variable(s).

(iii) Each conditional distribution of u has a mean of zero. In practice the major concern is that the residual mean is statistically independent of $x_i$.

(iv) The values of u should be independent of one another. Since the basis of this analysis is to investigate a spatial relationship, the assumption will be violated if the residuals show significant spatial autocorrelation.

(v) An assumption which concerns only multiple regression is that the regressor variables should be independent of each other. Intercorrelation of such variables in a multiple regression would result in the inaccurate estimation of the regression coefficients.

(vi) The variance of the conditional distribution of u is constant for all values of the regressor variable. This condition is called homoscedasticity. In the analyses which follow problems of achieving greater homoscedasticity and of removing skew from the data were incurred. If the assumption of homoscedasticity is not satisfied it can lead to inefficient estimates of the regression coefficients. A related concern is the problem of skew in the data which can lead to false conclusions about the result of the regression r.

The problem of skew was overcome by the omission of extreme values and by transformation, and greater homoscedasticity was achieved by the transformation of variables most often to logarithms (after Berry and Barnum, 1962, p.36) or roots.

(vii) If the model were to be used for inferential purposes, and since the 'random X' model is appropriate, it would be necessary that the conditional and marginal distributions of each variable be normal. However, there is little point in using significance testing if the variables under consideration represent the whole population, or a non-independent sample representing the majority of that population, though there are arguments to the contrary (Gudgin and Thornes, 1974, pp.158-9).

In applying these assumptions in a specific research situation it is important to recognise that they vary considerably in their significance. Just as the range of assumptions that have to be satisfied varies with the research purpose so too does the degree to which the chosen assumptions are robust. Of all the assumptions listed, numbers (ii), (iv) and (vi) are considered to be of most importance to this analysis since the objective is to obtain accurate point estimates for a, $b_i$ and r.

(5) Presbytery Analysis for the Church of Scotland

The relationship between percentage change in church membership and in total population between the years 1951 and 1971 was considered. The population of each Presbytery was calculated by adding the population of each civil parish contained in the Presbytery.

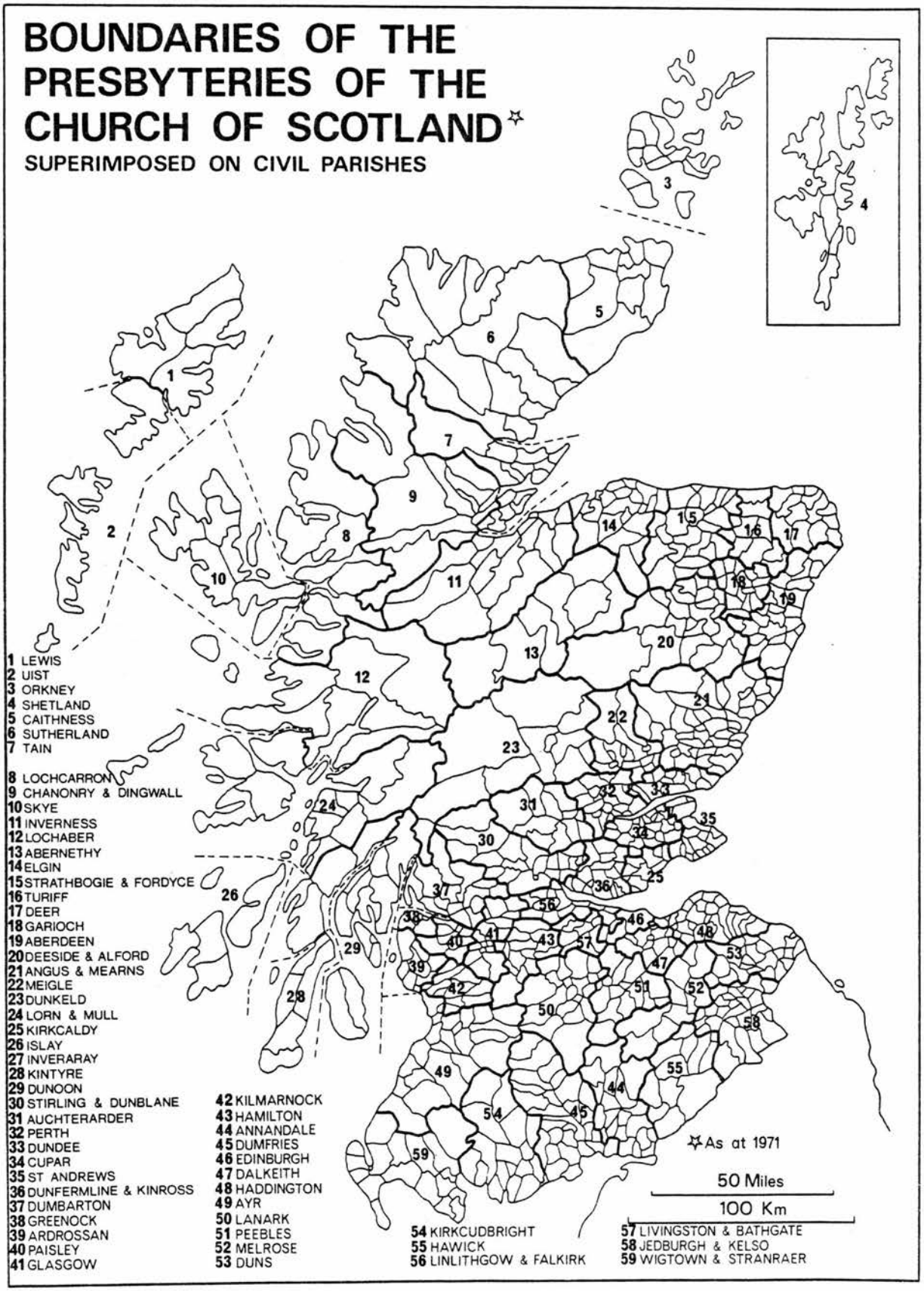
BOUNDARIES OF THE PRESBYTERIES OF THE CHURCH OF SCOTLAND*
SUPERIMPOSED ON CIVIL PARISHES
1 LEWIS
2 UIST
3 ORKNEY
4 SHETLAND
5 CAITHNESS
6 SUTHERLAND
7 TAIN
8 LOCHCARRON
9 CHANONRY & DINGWALL
10 SKYE
11 INVERNESS
12 LOCHABER
13 ABERNETHY
14 ELGIN
15 STRATHBOGIE & FORDYCE
16 TURIFF
17 DEER
18 GARIOCH
19 ABERDEEN
20 DEESIDE & ALFORD
21 ANGUS & MEARNS
22 MEIGLE
23 DUNKELD
24 LORN & MULL
25 KIRKCALDY
26 ISLAY
27 INVERARAY
28 KINTYRE
29 DUNOON
30 STIRLING & DUNBLANE
31 AUCHTERARDER
32 PERTH
33 DUNDEE
34 CUPAR
35 ST ANDREWS
36 DUNFERMLINE & KINROSS
37 DUMBARTON
38 GREENOCK
39 ARDROSSAN
40 PAISLEY
41 GLASGOW
42 KILMARNOCK
43 HAMILTON
44 ANNANDALE
45 DUMFRIES
46 EDINBURGH
47 DALKEITH
48 HADDINGTON
49 AYR
50 LANARK
51 PEEBLES
52 MELROSE
53 DUNS
54 KIRKCUDBRIGHT
55 HAWICK
56 LINLITHGOW & FALKIRK
57 LIVINGSTON & BATHGATE
58 JEDBURGH & KELSO
59 WIGTOWN & STRANRAER
*As at 1971
50 Miles
100 Km

Figure 6.7

Since the Presbyteries of Angus and Mearns, Livingston and Bathgate, and Dundee had undergone sizeable transfers of church membership because of boundary changes during the period, the figures for membership were adjusted to discount these artificial interruptions to the series.

A constant was added in order to remove negative values in the two variables, both of which also required a log-squared transformation. An analysis using absolute figures is not presented for the Presbytery because although both absolute and percentage figures were skewed, the absolute data were even more so, with several large values within a small total population (59). As a result it was not possible to satisfy the assumptions of regression for absolute data using the levels of transformation that were employed elsewhere in the analysis.

A correlation coefficient of 0.67 indicates a fairly strong positive relationship for the percentage data. The bivariate regression gives the following result:

TABLE 6.6 RESULT FROM A REGRESSION OF CHURCH MEMBERSHIP CHANGE ON POPULATION CHANGE BY PRESBYTERY

| | | | | | |
|---|---|---|---|---|---|
| R | 0.67 | Regressor variable | B | Beta | S.E. of B |
| $R^2$ | 0.45 | Population change | 0.53 | 0.668 | 0.078 |
| S.E. | 0.28 | Constant A | 1.154 | | |

S.E. - standard error/B and Beta - represent the unstandardised and standardised (expressed in standard deviation units) regression coefficient respectively.

The explained variance of 45 per cent is indicative of a substantial areal correspondence between church membership change and its predictor population change. In spite of this, it is clear that the relationship under scrutiny is more complex than can be explained by this one regressor variable, or equivalently by this regressor variable in its least sophisticated form; namely, aggregate change.

In seeking this greater understanding of the regressor variable the examination of residuals is a valuable tool. A basic two colour (black=negative[1] and white=positive residuals) test for spatial autocorrelation (after Ebdon, 1977, pp.131-2), which was necessary to check that the disturbance terms were independent of one another, gave a z statistic of 0.55. At the 0.001 significance level this result under a non-free sampling hypothesis suggests that the arrangement of negative and positive residuals is not significantly different to random. Although the relative location in this binary form does not suggest an explanation for the remaining variance, the size of the residuals may assist understanding. By examining the larger of these residuals further aspects of the relationship can be more easily perceived. To facilitate the task of interpreting the residuals the graphs of new communicants, deaths and lapse are used. Those which correspond to residuals with a standardised value of greater than one (positive of negative) are shown in Figure 6.8. By comparing these with the trends in population it is possible to make certain inferences.

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[1] A negative residual represents over-prediction by the equation while a positive residual represents under-prediction.

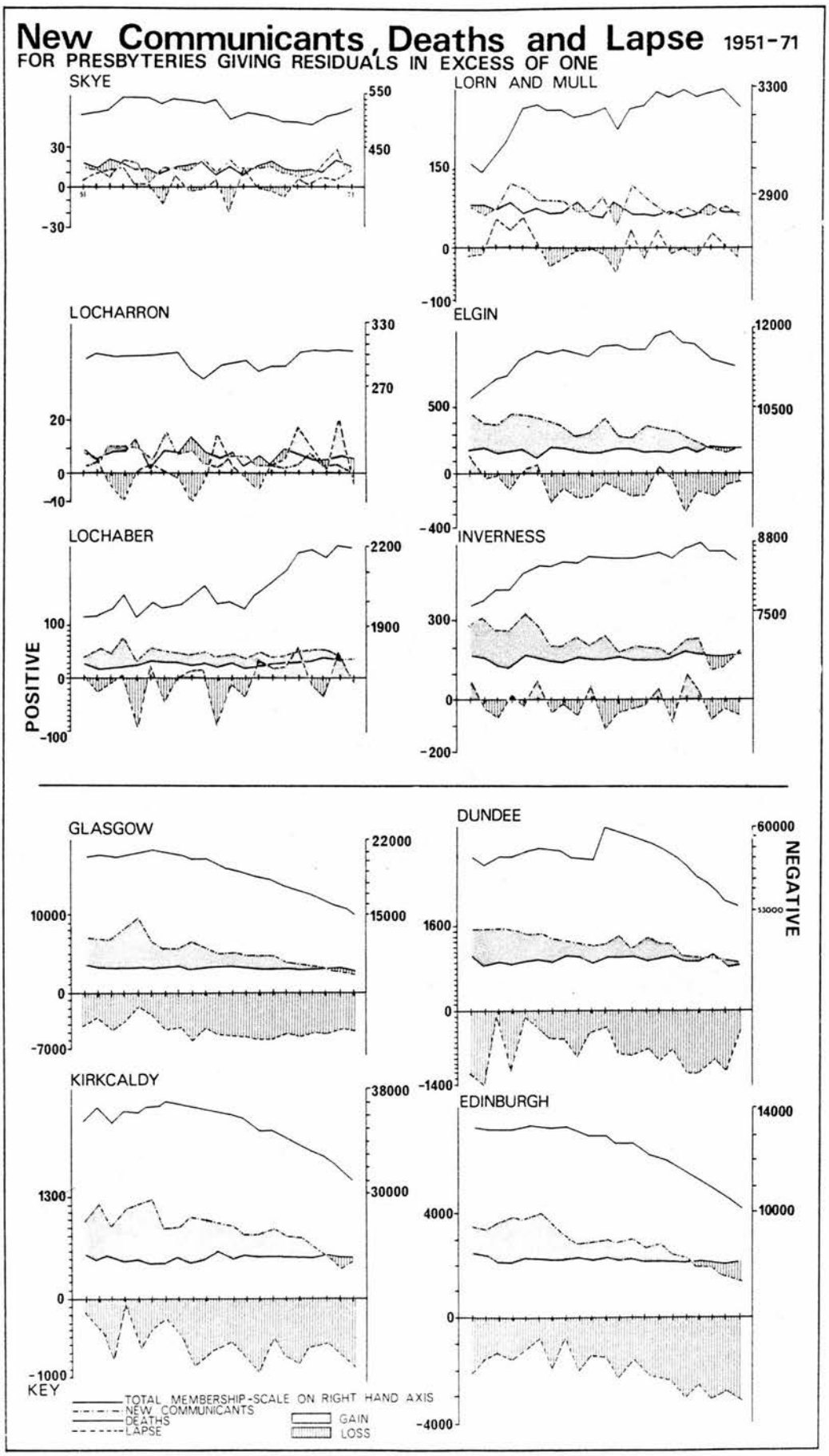
New Communicants, Deaths and Lapse 1951-71
FOR PRESBYTERIES GIVING RESIDUALS IN EXCESS OF ONE
SKYE
LORN AND MULL
LOCHARRON
ELGIN
LOCHABER
INVERNESS
POSITIVE
GLASGOW
DUNDEE
NEGATIVE
KIRKCALDY
EDINBURGH
KEY
TOTAL MEMBERSHIP-SCALE ON RIGHT HAND AXIS
NEW COMMUNICANTS
DEATHS
LAPSE
GAIN
LOSS

Figure 6.8

The large positive residuals are entirely accounted for by 'Highland' Presbyteries. The changes in church membership in Skye and in Lochcarron involved very small numbers, but it is notable that both have had only a small number of new communicants annually which have repeatedly failed to compensate for deaths. Seen in conjunction with the fact that population has declined over the period while there was an excess of admissions over removals of existing church members, it seems to suggest that there has been a significant out-migration of young people who are less likely to join the Church, with a small flow in the opposite direction of older age groups who have a greater propensity for church membership.

The other Presbyteries in this group are all growth points for population in the Highland area. Lochaber showed a consistent net excess of new communicants over deaths as well as significant gains from the admission of existing church members. Taken in the light of an overall population increase in this area, these trends suggest that younger age groups have been encouraged to stay in the area and the same attractive forces have brought immigrants of older age groups. Lorn and Mull has similarly benefited principally from a net gain of established church members due to immigration, mainly associated with Oban. Both Elgin and Inverness owe their growth in church membership largely to new communicants. Both have also experienced population increase, but while Inverness has often, in small quantities, gained more established church members than it has lost. Elgin has not had similar net gains. It would seem that Elgin did not have the same level of ability as Inverness to retain its existing church members.

Seen in contrast to the Presbyteries of Skye and of Lochcarron which have experienced population loss especially selective of younger age groups, the four 'Highland' Presbyteries which have experienced growth have, as economic and urban growth points in a generally declining region, been able not only to retain more of their own population but often to attract immigrants. The fact that these immigrants comprise established church members would support a hypothesis that many have come from elsewhere in the 'Highland' area as opposed to being younger people from other areas. Because of the aggregate nature of the executive area this hypothesis can be confirmed only to a certain extent by Table 6.4 which shows that Inverness executive area (including Lochaber and Inverness Presbyteries) did gain from 'Highland' areas to the north and east.

The large negative residuals are principally 'Lowland' urban Presbyteries, with the exception of Shetland (which is not illustrated) where the number of new communicants has been persistently weak and established church members have been lost. Combined with the fact that population has also declined in this Presbytery, these trends in membership suggest that emigrants were drawn from several age groups. Turning to the urban Presbyteries; Dundee, Edinburgh, Kirkcaldy and Glasgow, the number of new communicants has fallen in each and there have been similar losses by the removal of existing church members. Such changes are very significant to the Church in that these Presbyteries comprise a large proportion of the total national membership; in 1951 the four Presbyteries accounted for 34 per cent, and in 1971 for 29 per cent, of the membership of the Church of Scotland. In the Presbyteries of Dundee, Edinburgh and

Kirkcaldy, unlike Glasgow, population has increased but there was still a net loss of members. Three possible explanations can be offered. The first is that the increase in population was of a type that would tend not to contain church members, possibly because of age or social class. None of the urban areas that experienced population growth had high rates of natural increase so it is likely that much of the population growth is attributable to migration into these areas. The second possibility, which could apply to all four of the urban centres, is that out-migration has been selective of church members, of families which would tend to produce new communicants, and of young people who would be potential new communicants. Certainly in the cases of Edinburgh and Glasgow it has already been shown that there have been large losses to suburbanisation and by emigration. The third possibility is that there has been a substantial disaffection with the church in these urban areas and consequently numerous removals without certificate (that is departure from the Church without official recognition of a desire to transfer allegiance to another area); but this is not borne out by a comparison of the data for these Presbyteries with that for others. In view of the large net loss of members it is probable that the first and second factors could have operated for Kirkcaldy, Dundee and Edinburgh, giving a differential between gain from in-migration and loss from out-migration. However, while Glasgow has experienced a loss in membership it has also had a substantial population decline, so in this case the second explanation is the more likely.

It has become clear from this analysis of the residuals of Presbyteries that population change has many more facets than net

gain or loss which are likely to have specific effects upon the components of membership. It might be possible to account for the observed variation if the following were to be true:

(i) The age group(s) that migration favours can alter the composition of population at the source and destination and so influence church membership through its various components in these areas.

(ii) The motivation of any migrant, besides being related to (i), can be related to other variables, for example social class, which may influence the chances of his being a church member (or potential church member) and consequently of altering the numbers of church members at the source and chosen destination of his movement.

(iii) Although clearly not all migrants lapse from the Church migration can influence the permanency of lapsing. One possibility is that the migration process may act as a catalyst, or an excuse, to ensure that a previously weak allegiance to the Church in one area would not be renewed at a new location. Although this process may operate there is no reason to suppose that it has a spatial bias.

(iv) Another possibility is that lapsing may be explained by an independent variable other than, or besides, migration. It is possible that features of urban existence may lead to a higher lapse rate and so explain the lower rates of participation in these areas. For reasons that have been already stated this lapse would be reflected by removals without certificate.

Turning to the available evidence, firstly for point (iv); an examination of the ratio of removals with certificate to removals without certificate by Presbytery, using the Reports to the General Assembly from 1951 to 1971, suggests no spatial bias in lapse. It is apparent, however, that migration has had the effect of not only redistributing church membership but also many members have left the Church after migration which would tend to confirm point (iii). A limitation upon the examination of points (i) and (ii) is posed by the lack of data on the characteristics of migrants. The published

data shows that the migrant within Scotland is most likely to be under the age of 44 (Figures 6.9 and 6.10a) and is therefore less likely to be an existing member of the Church of Scotland. However, such migration would reduce the numbers coming forward as new communicants in a source area, and in a destination area after removal from their family, community or former parish church. It is also apparent from the evidence of Table 6.7 that it is those in the upper social groups who are more likely to move, and who are likely to move greater distances. Since these persons are known to have a greater propensity for church membership this would support point (ii).

TABLE 6.7 INTERNAL MIGRATION RATES PER 1000 BETWEEN LOCAL AUTHORITY AREAS IN SCOTLAND, 1960 - 1, BY DISTANCE AND BROAD SOCIAL GROUPS.

| Broad Social Group (socio-economic group) | Distance (miles) | | |
|---|---|---|---|
| | 5 - 14 | 15 - 39 | 40 and over |
| White Collar (1 - 5, 7, 16) | 15.4 | 14.2 | 18.2 |
| 'Average' (6, 12 - 15, 17) | 7.2 | 3.4 | 3.3 |
| Manual (8 - 11) | 12.3 | 8.4 | 7.3 |
| Total (1 - 17) | 10.2 | 6.9 | 7.3 |

Source - After Hollingsworth, T.H. (1970), Migration, Edinburgh, Table 3.10, p.58.

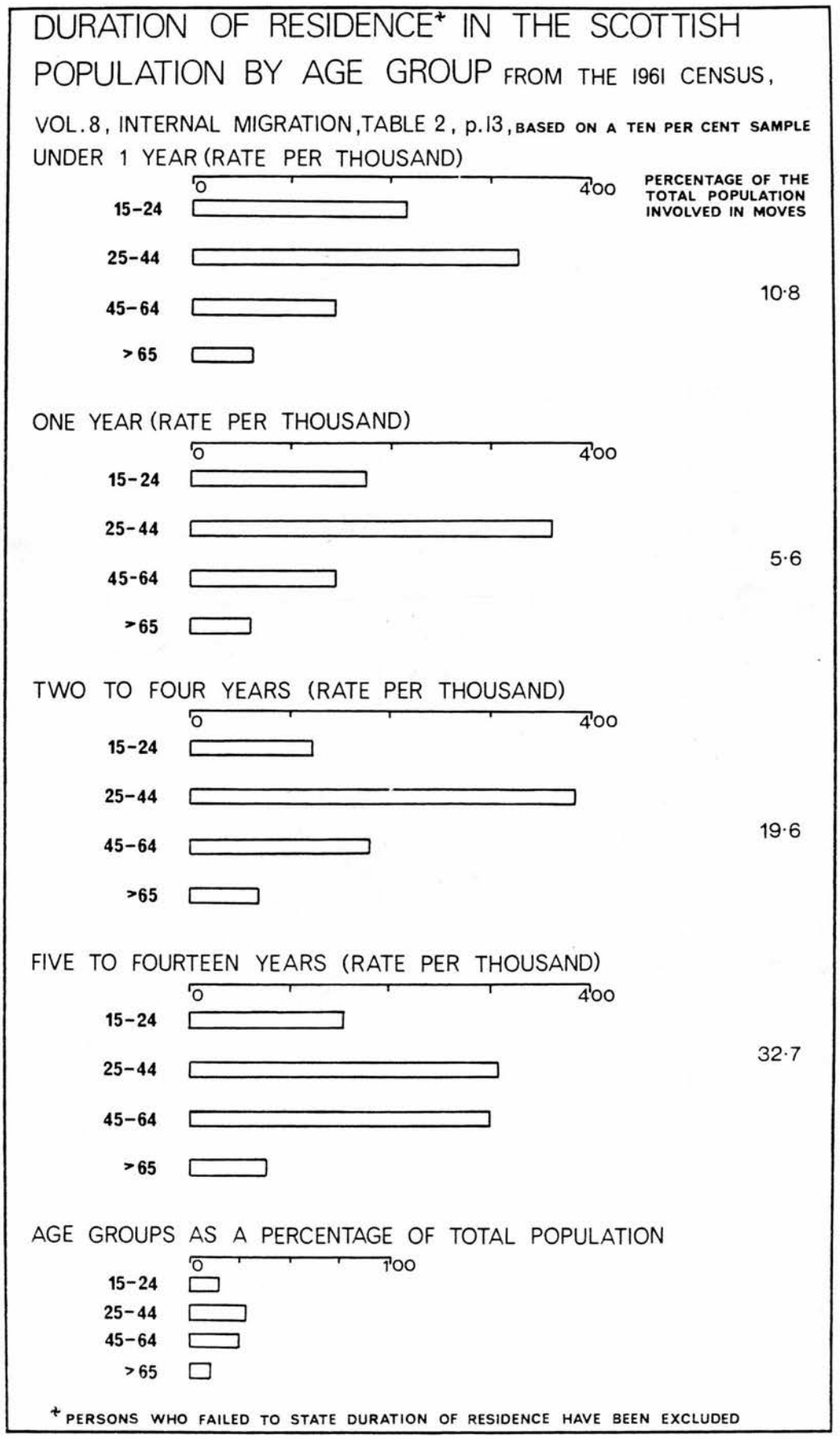
DURATION OF RESIDENCE* IN THE SCOTTISH POPULATION BY AGE GROUP FROM THE 1961 CENSUS,
VOL.8, INTERNAL MIGRATION, TABLE 2, p.13, BASED ON A TEN PER CENT SAMPLE
UNDER 1 YEAR (RATE PER THOUSAND)
0
400
15-24
25-44
45-64
>65
PERCENTAGE OF THE TOTAL POPULATION INVOLVED IN MOVES
10·8
ONE YEAR (RATE PER THOUSAND)
0
400
15-24
25-44
45-64
>65
5·6
TWO TO FOUR YEARS (RATE PER THOUSAND)
0
400
15-24
25-44
45-64
>65
19·6
FIVE TO FOURTEEN YEARS (RATE PER THOUSAND)
0
400
15-24
25-44
45-64
>65
32·7
AGE GROUPS AS A PERCENTAGE OF TOTAL POPULATION
0
100
15-24
25-44
45-64
>65
* PERSONS WHO FAILED TO STATE DURATION OF RESIDENCE HAVE BEEN EXCLUDED

Figure 6.9

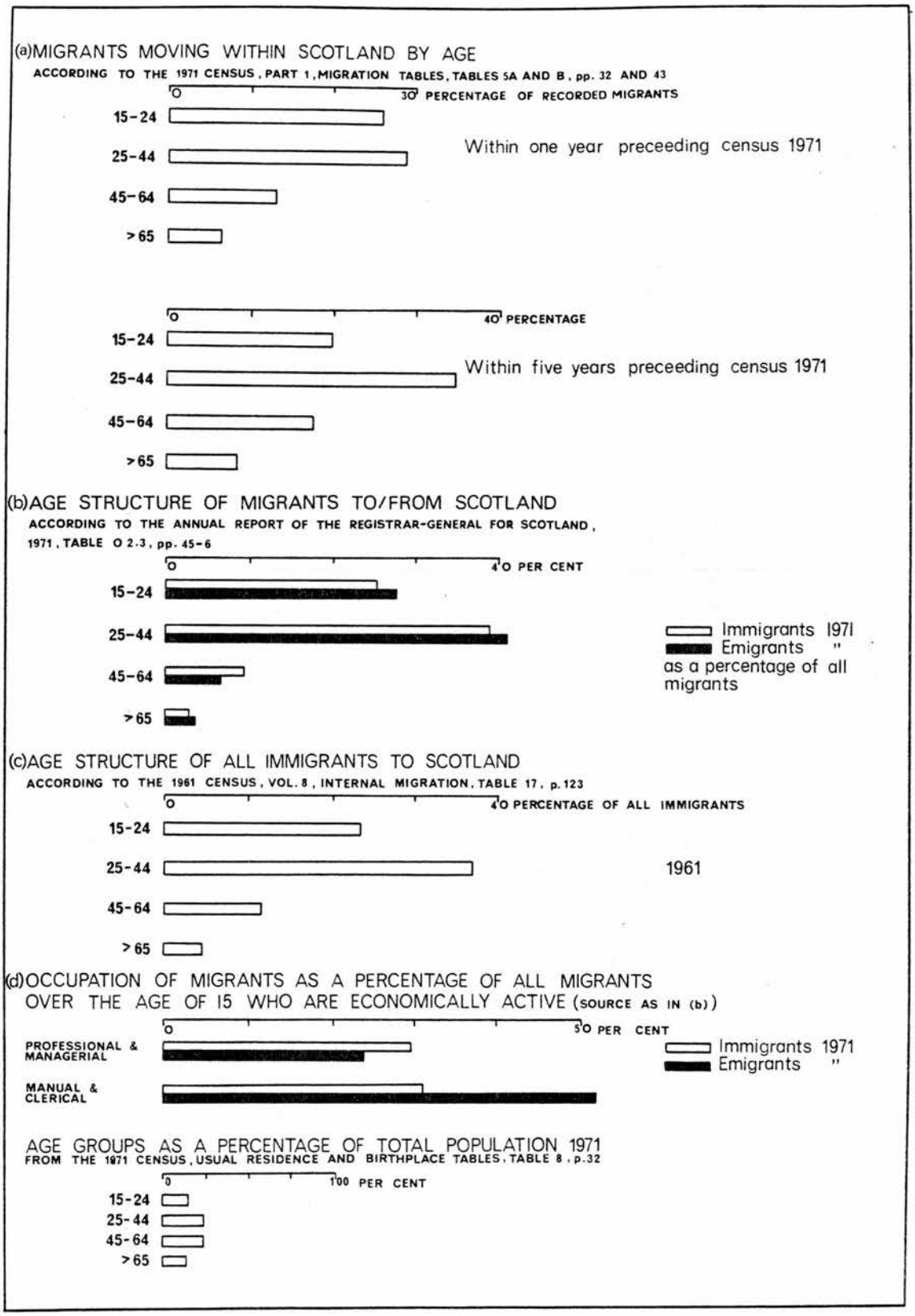
(a)MIGRANTS MOVING WITHIN SCOTLAND BY AGE
ACCORDING TO THE 1971 CENSUS, PART 1, MIGRATION TABLES, TABLES 5A AND B, pp. 32 AND 43
0
30 PERCENTAGE OF RECORDED MIGRANTS
15-24
25-44
45-64
>65
Within one year preceeding census 1971
0
40 PERCENTAGE
15-24
25-44
45-64
>65
Within five years preceeding census 1971
(b)AGE STRUCTURE OF MIGRANTS TO/FROM SCOTLAND
ACCORDING TO THE ANNUAL REPORT OF THE REGISTRAR-GENERAL FOR SCOTLAND, 1971, TABLE O 2.3, pp. 45-6
0
40 PER CENT
15-24
25-44
45-64
>65
Immigrants 1971
Emigrants "
as a percentage of all migrants
(c)AGE STRUCTURE OF ALL IMMIGRANTS TO SCOTLAND
ACCORDING TO THE 1961 CENSUS, VOL. 8, INTERNAL MIGRATION, TABLE 17, p. 123
0
40 PERCENTAGE OF ALL IMMIGRANTS
15-24
25-44
45-64
>65
1961
(d)OCCUPATION OF MIGRANTS AS A PERCENTAGE OF ALL MIGRANTS OVER THE AGE OF 15 WHO ARE ECONOMICALLY ACTIVE (SOURCE AS IN (b))
0
50 PER CENT
PROFESSIONAL & MANAGERIAL
MANUAL & CLERICAL
Immigrants 1971
Emigrants "
AGE GROUPS AS A PERCENTAGE OF TOTAL POPULATION 1971
FROM THE 1971 CENSUS, USUAL RESIDENCE AND BIRTHPLACE TABLES, TABLE 8, p.32
0
100 PER CENT
15-24
25-44
45-64
>65

Figure 6.10

Similarly, external migration to and from Scotland was concentrated in the under-44 age groups and was therefore less likely to affect existing church members than that constituency of the population about to become church members (Figure 6.10 - parts (b) and (c)). Histogram (d) in the same figure would also suggest that external migration was less likely to affect church membership, largely drawn from the professional social groups, than non-church members, mainly drawn from the manual and clerical social groups. Given these findings, it is difficult to ascribe the role of internal as against external migration in contributing to decline in church membership; but since external migration was likely to be recorded as a removal without certificate while internal migration could be recorded as removals both with and without certificate, then internal migration must have played the greater part in causing the decline in church membership.

(6) Civil Parish Analysis for the Church of Scotland

The relationship between church membership and population change is also considered at this more detailed scale. Certain of the hypotheses which have been formed in the previous section will be investigated in this new context. Since the use of absolute change was not previously possible at the Presbytery level, both percentage and absolute change are employed in this analysis. Further additions that have been made to the analysis include; first, an adjustment of the percentage change in population to discount the numbers of Roman Catholics in each civil parish with the intention of finding whether or not this improves the prediction; and second, the change in the number of females in each civil parish over the

period. The reason for considering the latter variable as one of potential significance is that there is some evidence to suggest that church membership is more prevalent among females (Gill, 1976, p.50, and Sissons, 1973, p.57) and it is possible that just as population change can have a bias in terms of age composition, so it may with respect to sex structure. As mentioned previously, the data for other components of population are not available for the period as a whole, but only for 1971. In order to develop the hypotheses that have already been formulated, a variety of indices are to be used in a correlation analysis for 1971, and it is hoped that conclusions drawn from this can be used to deduce, tentatively, the nature of the relationship between these variables and church membership.

The results of the regression analysis are given in Table 6.8. In seeking to satisfy the assumptions of regression methods it was found that the variables involved were typified by a highly skewed distribution whereby a few extreme values, even after transformation, exerted an undue influence upon the relationships between the variables. Since it was not possible to extend the range of variability in the variable by finding additional extreme cases because each variable comprised the total population, it is necessary to exclude extreme cases[1] from calculations while recalling their existence for subsequent interpretation of the results. A precedent for this type of approach exists (Blalock, 1972, pp.382-3). The exclusions (14)

---

[1] Extreme cases were identified by examining the frequency distribution of each variable and the scatter graphs of their joint distributions. By examining the graphs the extremes were found to commonly conform to those cases which would fall outside the one half per cent limit in a two-tailed test, assuming a normal distribution. This arbitrary threshold for exclusion was applied where necessary.

Table 6.8 - Results from Regression by Civil Parish for Change between 1951 and 1971[1]

(a) Percentage Change Equation : response variable - membership of the Church of Scotland
regressor variable - population

| | | | | | |
|---|---|---|---|---|---|
| R | 0.51 | Regressor variable | B | Beta | S.E. of B |
| $R^2$ | 0.26 | Population | 5.58 | 0.051 | 0.324 |
| S.E. | 1.15 | Constant A | -1.486 | | |
| Number of cases 855 | | | | | |

(b) Percentage Change Equation : response variable - membership of the Church of Scotland
regressor variables - population
- females as a proportion of total population

| | | | | | |
|---|---|---|---|---|---|
| Multiple R | 0.52 | Regressor variables | B | Beta | S.E. of B |
| $R^2$ | 0.27 | Population | 5.64 | 0.513 | 0.323 |
| S.E. | 1.14 | Females | 3.48 | 0.102 | 1.007 |
| Number of cases 855 | | Constant A | -9.58 | | |

(c) Percentage Change Equation : response variable - membership of the Church of Scotland
regressor variable - population less the number of Roman Catholics

| | | | | | |
|---|---|---|---|---|---|
| R | 0.48 | Regressor variable | B | Beta | S.E. of B |
| $R^2$ | 0.23 | Population less Catholics | 0.45 | 0.476 | 0.029 |
| S.E. | 1.17 | Constant A | 5.06 | | |
| Number of cases 855 | | | | | |

(d) Absolute Change Equation : response variable - membership of the Church of Scotland[2]
regressor variable - population

| | | | | | |
|---|---|---|---|---|---|
| R | 0.54 | Regressor variable | B | Beta | S.E. of B |
| $R^2$ | 0.30 | Population | 14.23 | 0.544 | 0.750 |
| S.E. | 57.1 | Constant A | 472.70 | | |
| Number of cases 857 | | | | | |

[1] The symbols used in this table have the same meaning as those in Table 6.6.

[2] The transformations that were used throughout these calculations were logarithms or roots, with the exception of this variable which had, unlike the others, a negative skew and was therefore squared. Wherever necessary a constant was added to remove negative values prior to transformation.

from the percentage equation had, on the whole, no special characteristics but did include the New Towns of Livingston and East Kilbride. The exclusions from the absolute equation, by contrast, did have a common characteristic; the 12 exclusions, with the exception of Aberdeen, were all in the Central Lowlands, and all twelve represent the greatest urban changes in population.

The most obvious aspect of the results, shown in Table 6.8, is the reduction in the level of explained variation in church membership from the earlier analysis of percentage change by Presbytery. The reduction is from 45 to 27 per cent. The addition of a variable representing change in the sex structure of civil parishes makes only little improvement (one per cent) to the level of explanation (equation (b)). Since this variable gives a positive regression coefficient it is indicative of some slight relationship between change in the ratio of females to males in a civil parish and church membership change. It is not possible to include the sex structure variable in the absolute change equation, because its high correlation with population (0.99) makes it seriously collinear (usually taken as a coefficient of more than 0.8) with the remaining regressor variable.

Further improvement to the explanation of the change in church membership is not achieved by the removal of the Roman Catholic population from the regressor variable (equation (c)). It might be argued that had another denomination experienced different changes in its membership to the Church of Scotland, then the exclusion of its numbers from the total population would improve the prediction of change for the Church of Scotland. The reduction in the explained

variation through this particular equation could suggest that the argument is incorrect. Alternatively and more probably other denominations would have to be included besides the Catholic Church; since although the exclusion of the Catholic population would improve the prediction in civil parishes which contained Catholics it would weaken relatively the prediction in areas which did not and where other denominations were more significant.

The reduction in the level of explained variation from the earlier analysis by Presbytery is a feature that is common to studies of areal association. The statistical measure of the relationship between two variables usually varies systematically with the scale of data aggregation. The reduction could also, in part, reflect the exclusion of extreme cases prior to calculation, but these are only recognisable because disaggregation of the data into the form of smaller areal units increased the observable variation in the response variable.

Since the lower level of explained variation is not a flaw but in fact is a result of greater detail, it should be possible to take account of this to further examine the role of the regressor variable. At this scale the residuals from the absolute change equation (d) are available to complement the interpretation of residuals from the percentage change equation (a). Again the residuals based on percentage change gave a z statistic in a black/white test for spatial autocorrelation of 0.46 which, at the 0.001 significance level, means that the arrangement of residuals is not significantly different to random. On the other hand, the residuals from the absolute change equation gave a z statistic of - 3.95 which means,

at the 0.001 significance level, that the arrangement of residuals is very unlikely to arise by chance and is significantly clustered.

The latter result suggests that the assumption of independence of the error terms in linear regression is not satisfied for equation (d). In statistical terms this implies that the estimates of the regression coefficients would not be efficient. Gould has noted, though, that the most important consideration in a spatial regression is to ascertain the reason for spatial autocorrelation since:

> . . . all our efforts to understand spatial pattern, structure and process have indicated that it is preceisely the lack of independence - the interdependence of spatial phenomena that allows us to substitute pattern, and therefore predictability and order, for chaos and apparent lack of interdependence of things in time and space.
>
> (Gould, 1970, pp.443-4).

The contiguity of the residuals has different implications for the evaluation of the regressor variable according to whether or not there is a spatial pattern of over - and under - prediction in the residuals which is consistent with contiguity in the response variable. If the patterns are consistent then the regressor variable has a low explanatory power, whereas if they are not it is possible that the regressor variable may under - or over - predict only in certain areas and have a high explanatory power elsewhere.

In this analysis the absolute figures, unlike percentage figures, could be a function of the proportion of Church of Scotland members in the total population of each civil parish. As the

proportion of members declines the chance that the absolute change in church members will diverge from the absolute change in population increases. For the Church of Scotland the pattern of the strength of church membership relative to total population can be broadly divided into four; with the lower proportions in the North West and in the Central Lowlands, and the higher in the South and North East. Within each of these areas there is a broad contiguity in the response variable; but this is not the case for the residuals since, with the exception of the North West in which virtually all residuals are positive, there is an inter-mixture of positive and negative residuals. The size of the residuals will be greatest in the areas in which the numerical difference between church membership and population is greatest. As the civil parishes of the Central Lowlands tend to have the largest absolute population combined with a relatively low proportion of church members, it is expected that this area will contain the largest residuals, and that these will be negative. In consequence any large positive residuals that might occur in this area would be all the more surprising, as against small positive residuals which could reflect the mathematical averaging implicit in least squares regression.

An examination of the pattern of over-prediction and under-predicition in all the residuals from both the percentage and absolute equations shows a notable basic areal similarity between the two, with the exception of the more frequent occurrence of positive residuals in the absolute equation especially in the North and West. A revealing contrast is apparent, however, when these residuals are mapped by size as well as sign. The map of standardised residuals

from the absolute equation (Figure 6.11) has a distinct bias to the Central Lowlands where the larger negative and positive values are clustered. It must be remembered also that the extreme values, which were excluded from the analysis because of skew, were, with the exception of Aberdeen, taken from this area. The positive residuals strongly reflect the areas of growth and residential expansion; Dumfries area, South Fife, periphery of Glasgow, Ayr and the Stirling-Falkirk area which were earlier identified. In contrast, the map of large residuals for the percentage change equation (Figure 6.12) shows a wide dispersion across Scotland, but largely excluding the Central Lowlands. The distribution of these more detailed residuals confirms the general patterns which were observed for percentage data at the Presbytery level; notably the negative residuals of Shetland and Glasgow, and the positive residuals of the Inverness area, Lochaber and Skye. The wider spread of residuals at civil parish level, particularly into the South West and Borders, suggests that refinements of the regressor variable would also be applicable here. It seems that at the scale of the civil parish the results of percentage and absolute regression equations are complementary, and when combined they confirm the results from the percentage change regression at Presbytery level.

Given that the spatial trends at civil parish level are supportive of those at Presbytery level, and by deduction therefore of the same hypotheses which were framed at that level, it is apposite to examine in detail certain ideas that are intrinsic to these hypotheses. These relate to the structure of church membership and

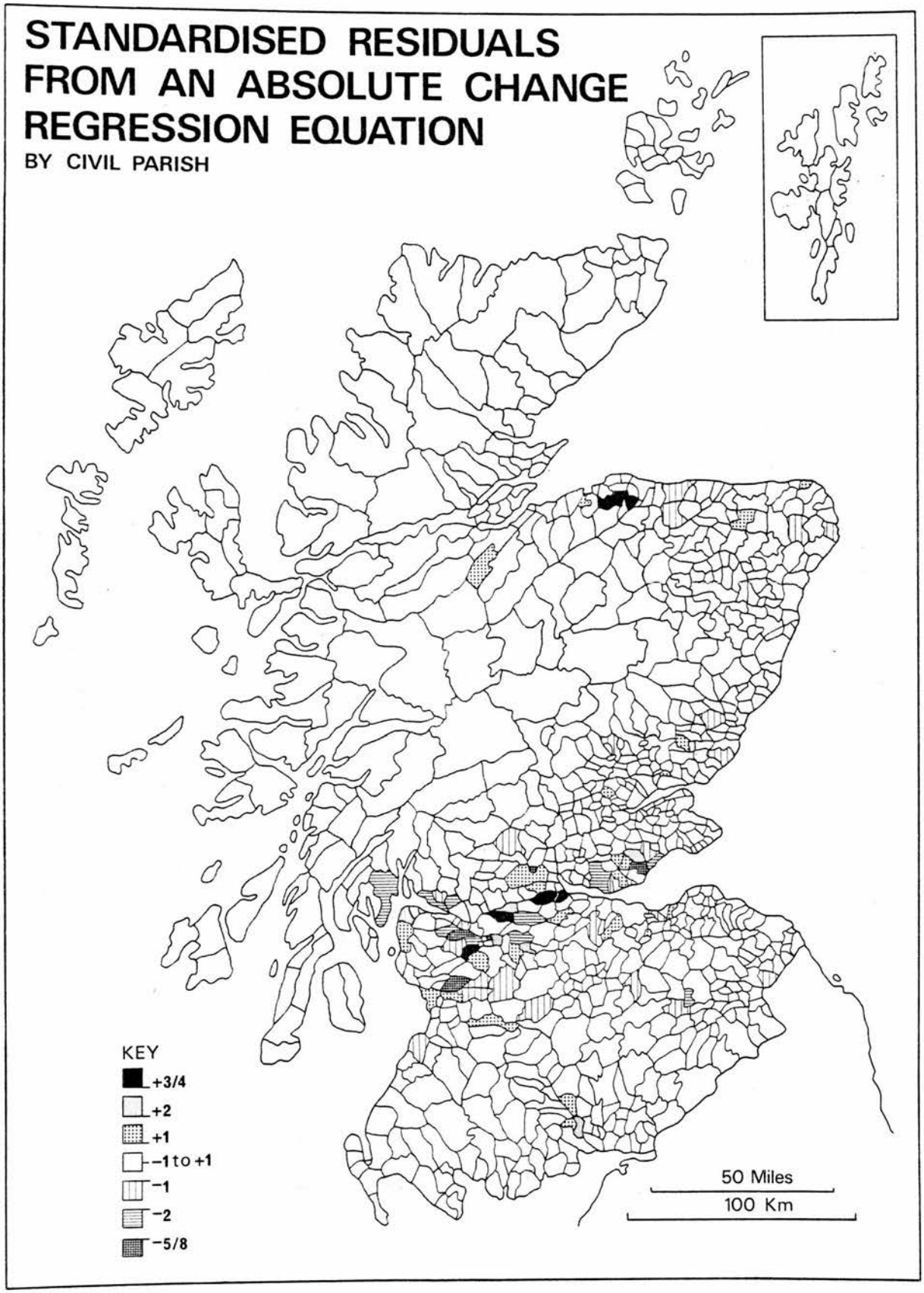
STANDARDISED RESIDUALS
FROM AN ABSOLUTE CHANGE
REGRESSION EQUATION
BY CIVIL PARISH
KEY
+3/4
+2
+1
−1 to +1
−1
−2
−5/8
50 Miles
100 Km

Figure 6.11

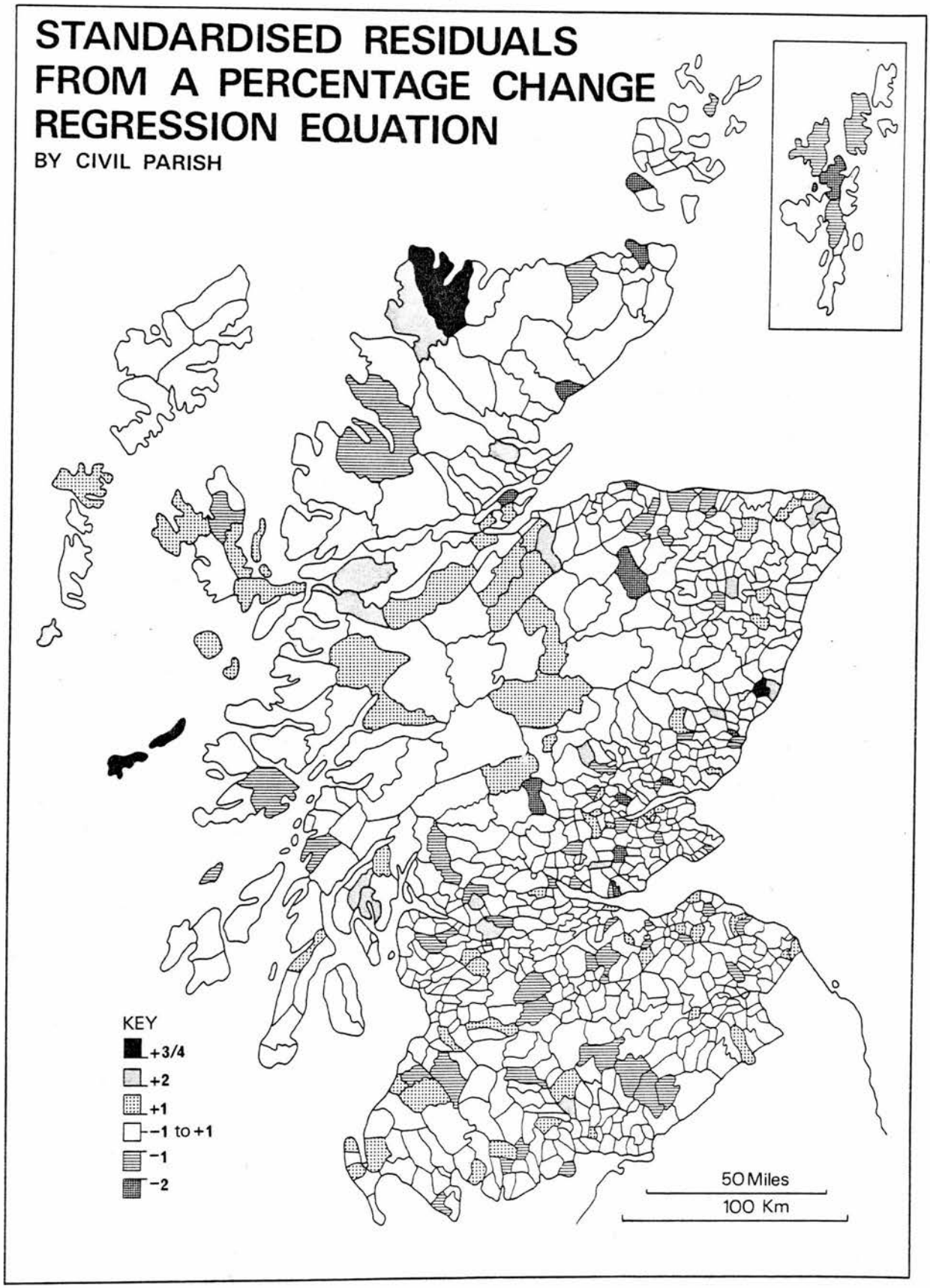
STANDARDISED RESIDUALS
FROM A PERCENTAGE CHANGE
REGRESSION EQUATION
BY CIVIL PARISH
KEY
+3/4
+2
+1
−1 to +1
−1
−2
50 Miles
100 Km

Figure 6.12

the motivation for migration. However, data for the whole period are scarce, often obtainable only from the 1971 Census. A comparison is made for 1971 in Table 6.9 of pertinent indices and membership of the Church of Scotland which is represented where appropriate as a proportion of the total population of each civil parish. Since the membership of the Church of Scotland is noticeably under-represented in the North West, because of a failure to record adherents, an adjustment of a two times multiplier, based upon a range of estimates, was applied to the civil parish membership figures in this area. This had no observable effect upon the results, but was retained. The indices of age and sex were included in the correlation, but as would be expected in a Church for which the lowest age of admission is usually seventeen there is a negative relationship with variable 1. There is a positive relationship to variables 2 and 3, but not specifically to the females in these age groups, variables 4 and 5, nor to the proportion of the toal population over the age of 60 (variable 6). The relationship between age and church membership favouring those between 30 and 60, must be interpreted cautiously, but it does give additional support to hypothesis (2) of the previous chapter.

Church membership is also possibly related to population movement through the type of push or pull factor involved. The reasoning for this is partly that suburbanisation, in larger part as voluntary overspill, will be into private housing[1] and will involve

---

1 A study by McDonald, 1970, of migration from Glasgow to the New Towns of East Kilbride and Glenrothes emphasised the preponderance of migration among the middle class, the family builder and the skilled manual workers.

a high proportion of church members[1], while movement into or within urban areas will tend to involve council housing and a lower proportion of members. The possible relationship between housing type and the strength of church membership is suggested by the correlation result, with variable 7, (Table 6.9), but it is necessary to be cautious in that this result could reflect the concurrence of the urban-rural division in the strength of church membership and in housing type besides a causal relationship. Church membership can be analysed also in terms of employment. The positive association between the number employed in agriculture, expressed as a proportion of employment in agriculture and manufacturing combined, and the strength of membership of the Church of Scotland suggests a definite rural-urban contrast, such that it is possible that movement from urban areas for employment is less likely to affect church members while movement from rural areas for employment most probably would.

The significance of these results for the Church of Scotland is highlighted when some of the same indices are compared to the Catholic population expressed as a proportion of the total population. As might be expected there is a definite positive relationship between Catholic population and youth (variable 1), and a negative one with older age groups (variable 3). There is also a positive correlation between the strength of this denomination and

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[1] The relationship between Church and class in Scotland has been most often investigated for the Church of Scotland. For example, in a study of Edinburgh, Robertson, 1966, has indicated the tendency to stronger allegiance to the Church among the middle class; though locally this generalisation may be negated according to the particular community.

proportion of non-private housing (variable 7). These relationships are in distinct contrast to the Church of Scotland and so the Catholic Church is a subject worthy of further examination.

TABLE 6.9 CORRELATION RESULTS FOR CIVIL PARISHES, 1971.

| Regressor variable | Correlation results | |
|---|---|---|
| | Church of Scotland[1] | Catholic Church[2] |
| 1. Population under 15 | -0.122 | +0.364 |
| 2. Population over 30 | +0.175 | |
| 3. Population over 45 | +0.176 | -0.280 |
| 4. Females over 30 | +0.127 | |
| 5. Females over 45 | +0.123 | |
| 6. Population over 60 | +0.119 | |
| 7. Council, New Town, S.S.H.A. as a percentage of all housing | -0.395 | +0.195 |
| 8. Agricultural employment | +0.283 | |

1. Each is based on 861 cases since 8 civil parishes were excluded from the calculation because they recorded abnormal percentages.

2. Based on the 194 civil parishes in which Catholic population is recorded.

(7) Patterns of Change in the Roman Catholic Church

The contrasts that this denomination offers are not just of age and social structure, but also of basic spatial distribution. The Catholic Church is concentrated largely in the Central Lowlands with only a few civil parishes outside this area showing its presence where Catholics form only a low percentage of the total population. The spatial concentration of recorded Catholic population in about one quarter of the civil parishes of Scotland, combined with low rural percentages, is in complete contrast to the Church of Scotland, though the two Churches are similar in having large absolute numbers in the Central Lowlands.

Within the Central Lowlands, the centre of gravity of the Roman Catholic population has long been the Central Clydeside area. However, the maps of absolute change in Catholic population (Figures 6.13 and 6.14) show that while the centre of gravity remains in the Glasgow area the degree of concentration has been lessened over the post-War period. Catholic population has been redistributed within the West Central area giving large increases (Figure 6.14) around Glasgow, especially in the New Towns of East Kilbride and Cumbernauld to the south and north of the city respectively. Significant gains have also occurred in the East Central area, in particular in the Falkirk-Grangemouth region and in the south of Fife, especially in the New Town of Glenrothes.

An examination of the negative change map (Figure 6.13) shows that the larger decreases have occurred in the major urban civil parishes. The most obvious of these are Glasgow and Govan

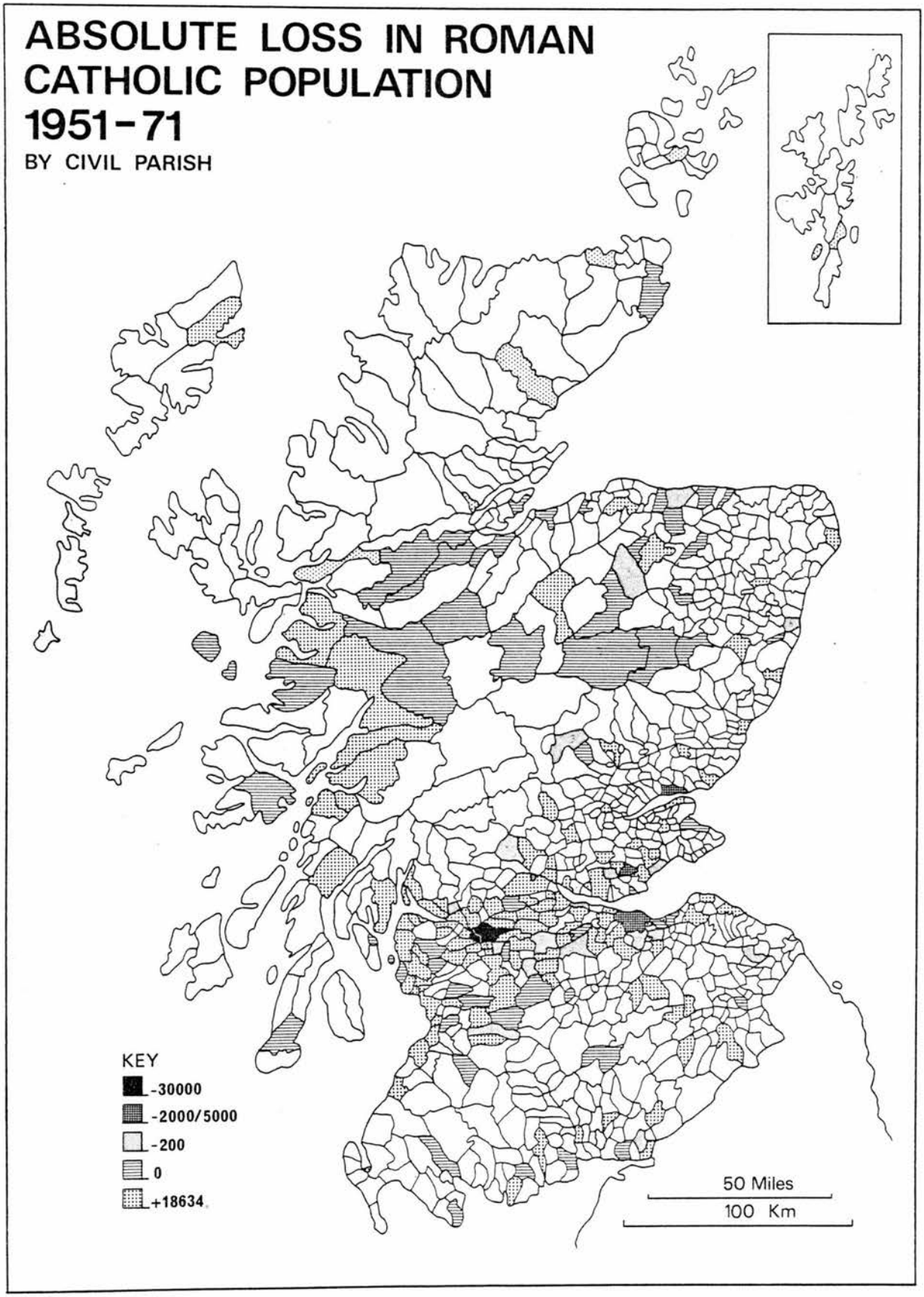
ABSOLUTE LOSS IN ROMAN CATHOLIC POPULATION 1951-71
BY CIVIL PARISH
KEY
-30000
-2000/5000
-200
0
+18634
50 Miles
100 Km

Figure 6.13

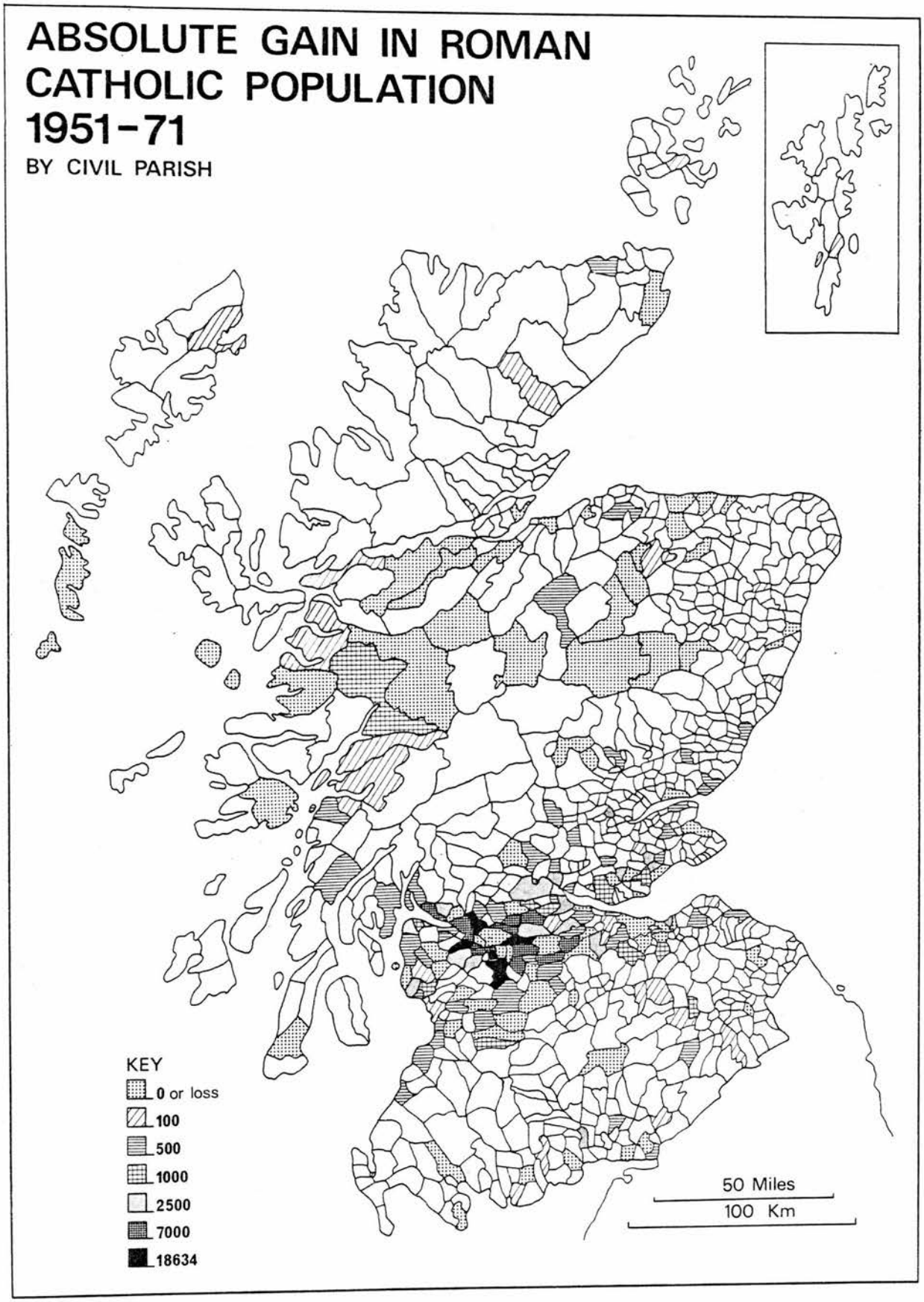
ABSOLUTE GAIN IN ROMAN CATHOLIC POPULATION 1951-71
BY CIVIL PARISH
KEY
0 or loss
100
500
1000
2500
7000
18634
50 Miles
100 Km

Figure 6.14

civil parishes; but there were also decreases in Aberdeen, Dundee and Edinburgh, though these were not so large. There were also numerous small losses in the Central Highland/Inverness area but not all rural areas have experienced decline. There were several increases in Catholic population in the civil parishes of the West coast, both north and south, but especially in the Lochaber/Oban area. So despite the contrast between the basic distributions of the Catholic Church and the Church of Scotland, there are surprising similarities between the two in the spatial pattern of post-War change, whether it be gain or loss.

But in an examination of the Catholic population there is a unique factor that must be noted. Since the definition of Catholic population included persons of all ages and lapsed as well as practising Catholics, there are specific implications for understanding change in this denomination. Consequently, unlike the Church of Scotland, lapsed persons ought to be recorded at destination after a move within Scotland. Also the number of baptisms will be directly reflected in the membership figures. The number of baptisms are compared with the total population of the Catholic Church for each year during the 1951 to 1971 period in Figure 6.15. Despite the similarity in trend, there must clearly be an intervening variable which reduces the annual increment that the number of baptisms would cause in the total Catholic population to the actual increment in Catholic population each year. It is not likely that deaths could account for this entirely, especially considering the tendency of the Catholic population to be of predominantly younger age groups, and figures provided by Spencer (1968, p.16) show that deaths can

ROMAN CATHOLIC POPULATION AND BAPTISMS 1951-71

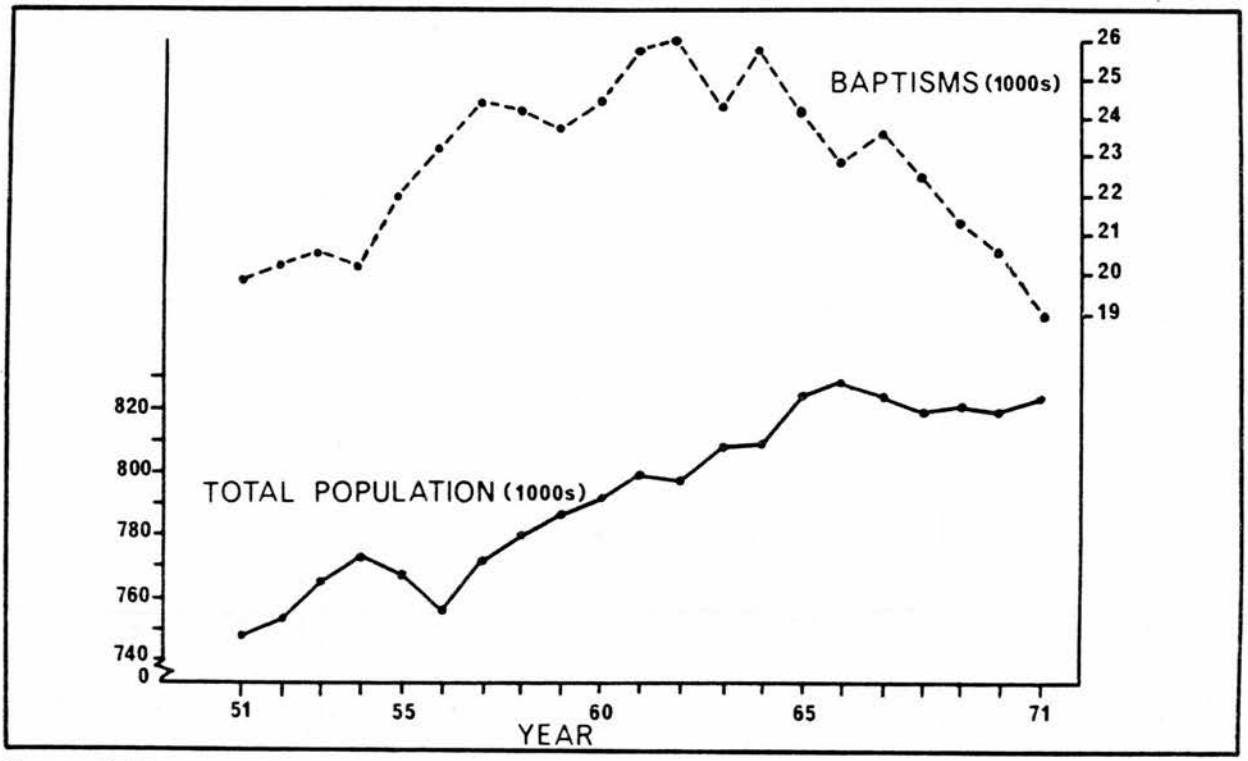


Figure 6.15

Source: The Catholic Directory for Scotland from 1952 to 1972.

only account for a small proportion of the loss. It is even more unlikely that departures from the Church through mixed marriage could account for the loss. There must have been another form of permanent loss to this Church. In a Church which encompasses lapsed members, there must be a process whereby the failure to account for such people accounts for their permanent loss. It is unlikely that more than a few could result from a persistent error of the clergy in not recording the presence of Catholics in their parish of residence. It is more likely that the loss of recorded Catholics results from migration from an area where they are 'known as lapsed Catholics, to another part where they are not known as Catholics at all' (Spencer, 1968, p.17).

In the light of the statistics which he had gathered Spencer was able to come to the conclusion that the permanent loss, or 'leakage' in his own words, was 23,400 over the year 1966-7. The emigration from Scotland in 1967[1] was 81,125. The Catholic population in Scotland was 16 per cent of the total population of Scotland in both 1966 and 1967. This means that approximately 12,980 of the emigrants from Scotland could possibly be Catholics which would account for only half of the 'leakage'. If it is also borne in mind that the loss of Catholics by emigration would be partially compensated by a gain from immigration, then external migration would account for less than half of the loss by 'leakage'. The study of this year has implied that internal migration was principally responsible for the 'leakage' of Catholic population. The loss occurred over the whole of the 1951 to 1971 period, though after 1966, when Catholic population began to decline and then to stagnate, it is clear that the decline in the number of annual baptisms from the early 1960s was beginning to have an effect in addition to the loss through migration. When this 'leakage' is combined with the probability that there would have been movement of Catholics who were recorded at destination, it is apparent that there must have been a sizeable migration of the Catholic population during the post-War period.

The problem of explaining that proportion of the 'leakage' which is not attributable to external migration remains; it is necessary to explain why some migrants within Scotland would not be

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[1] From the National Health Service Central Register of Patients' Movements.

recorded as Catholics at their destination. A possible explanation is that they moved to areas without, or with sparse, provision of church facilities. Given that most of the Catholic population was concentrated in the West Lowlands, and especially in Glasgow, and given a knowledge of migration direction from this area from Table 6.4, it can be stated that the major flows of Catholics were not to areas without Catholic provision. However, it is clear that the gains (Figure 6.14) in Catholic population to areas outside the Glasgow conurbation were not as large as might have been expected from Table 6.4. This could possibly reflect the sparser provision of Catholic facilities there, and although less true for Lanark and Dunbarton executive areas, it is more so for Ayr and Renfrew, and is especially so for areas in the East Central region, including Fife, Lothian and Peebles, and Stirling and Clackmannan executive areas.

(8) Patterns of Change in the Episcopal Church

Despite its small numerical size, this Church is well spread over the country, showing its presence in more than one quarter of the civil parishes. The absolute change in communicant membership over the period is shown in Figure 6.16. The largest numerical declines can again be seen to occur in urban areas in the Central Lowlands; including Dundee and especially Edinburgh and Glasgow, but also in several of the large burghs. In the east these include Kirkcaldy and Dunfermline, and in the west membership has decreased on the Clyde coast, in Greenock, Gourock, Dunbarton, Renfrew and Port Glasgow, and eastwards into Rutherglen, Wishaw and Motherwell. In contrast, there has been growth in some civil parishes to the north and south of Glasgow in association with suburbanisation, and on the

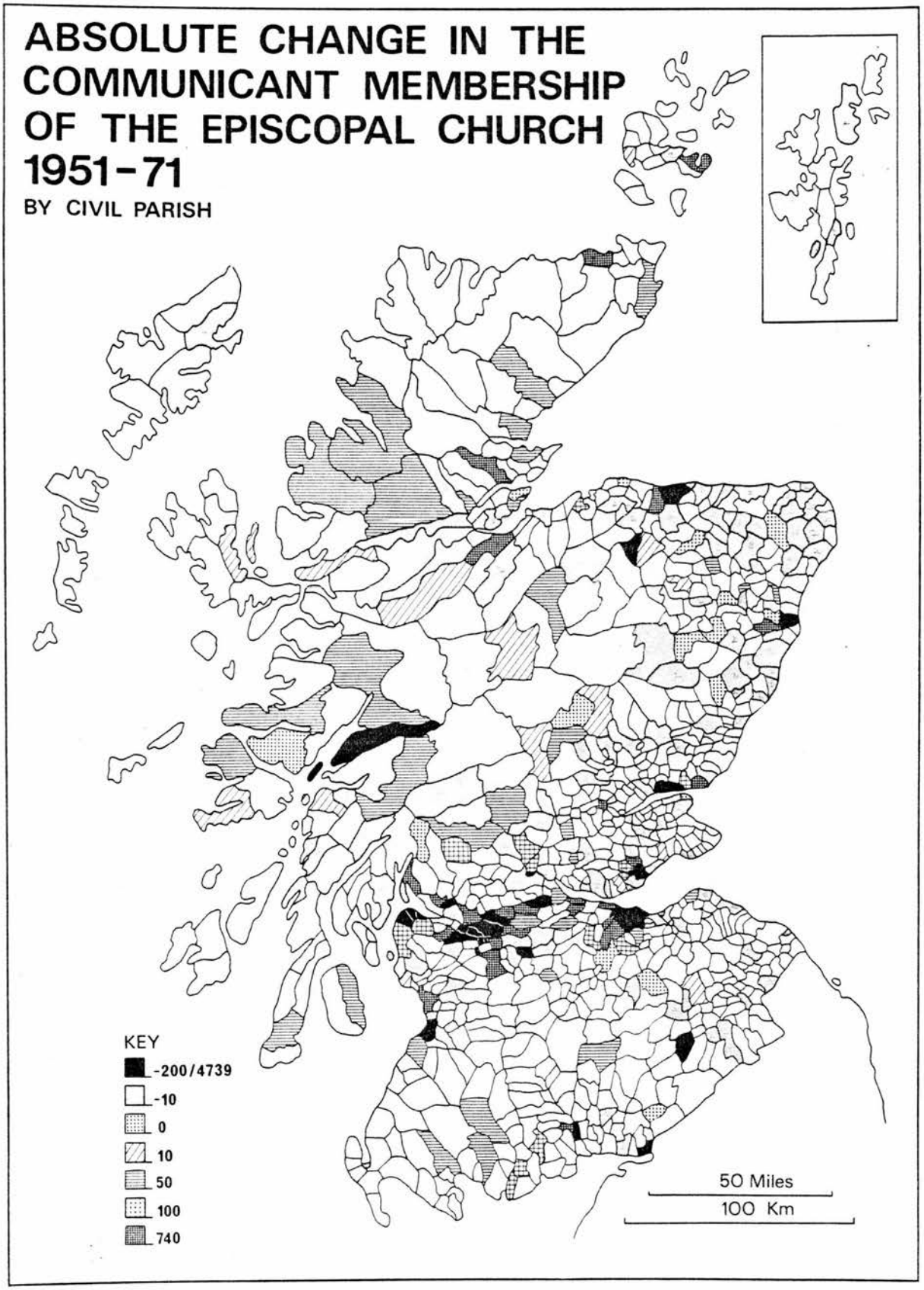
ABSOLUTE CHANGE IN THE COMMUNICANT MEMBERSHIP OF THE EPISCOPAL CHURCH 1951-71
BY CIVIL PARISH
KEY
-200/4739
-10
0
10
50
100
740
50 Miles
100 Km

Figure 6.16

Ayrshire coast outwith the burgh of Ayr. Similarly, in the east there have been increases in the vicinity of Edinburgh which were associated with the residential expansion in Haddington, Balerno, Linlithgow and South Queensferry, but at the same time there have been decreases in the Falkirk and Stirling area. The general losses of membership in the Central Lowlands, particularly in the West Central area in large burghs, are very unlike the trends in the Roman Catholic Church and dissimilar to those of the Church of Scotland.

The tendency for greater decline to occur in burghs is also reflected in the North East and in the Borders where, besides experiencing small decreases in numerous civil parishes there have been larger declines in for example, Hawick and Jedburgh in the Borders, and Peterhead and Buckie in the North East. However, the picture is not wholly one of decline in the areas outside the Central Lowlands; there have been several gains in the South West as well as in the North where there have been gains in the Lochaber, Inverness and Dingwall axis. Viewed as a whole, the pattern of change in this Church shows basically the same spatial trend of relationship to population movement as was observed for both the Church of Scotland and the Catholic Church; but the weakness in the membership of the Episcopal Church in parts of the Central Lowlands and rural burghs elsewhere, suggests that the relationship may be conditioned by at least two factors. The first of these is that the social structure of the Church's membership is such that it is weaker in the burghs of the Central Lowlands associated with industrial activity, being a predominantly middle - to upper working - class Church (for example Highet, 1960, p.32), and this is a trend that may be emphasised

by the residential preference of the English immigrant. The second is that since there have been several losses from rural areas and burghs the Church may be suffereing from a selective out-migration of young, economically active, people.

(9) The Congregational Union and the Baptist Church[1]

The churches of the Congregational Union although small in size are well dispersed throughout Scotland with the exception of the Highlands (Figure 6.17). The pattern of growth and decline is an exaggeraged version of those which have been observed in previous sections. There were major losses of membership in Aberdeen, Dundee, Edinburgh and in particular in Glasgow and the neighbouring large burghs to the south east. Further decline took place in the North East and in the Borders. Increases in membership were most noticeable on the outskirts of Glasgow. Overall, the pattern is one of decline with selective areas of increase.

The pattern of change in the Baptist Church, as shown in Figure 6.18, is very similar. Again the principal decline in membership was urban, along with several decreases in the Borders. Unlike the Congregational Union there was little decline in the North East, but this was compensated by the greater number of losses in membership from congregations of the Baptist Church in the south of Fife. Another difference between the two denominations is that the Baptist Church showed more clearly the spatial concentration of increase in members, in line with population movements, outwards from Glasgow and in the East Central region.

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[1] The term Church is used instead of Union since a few Baptist churches are officially outside the Union.

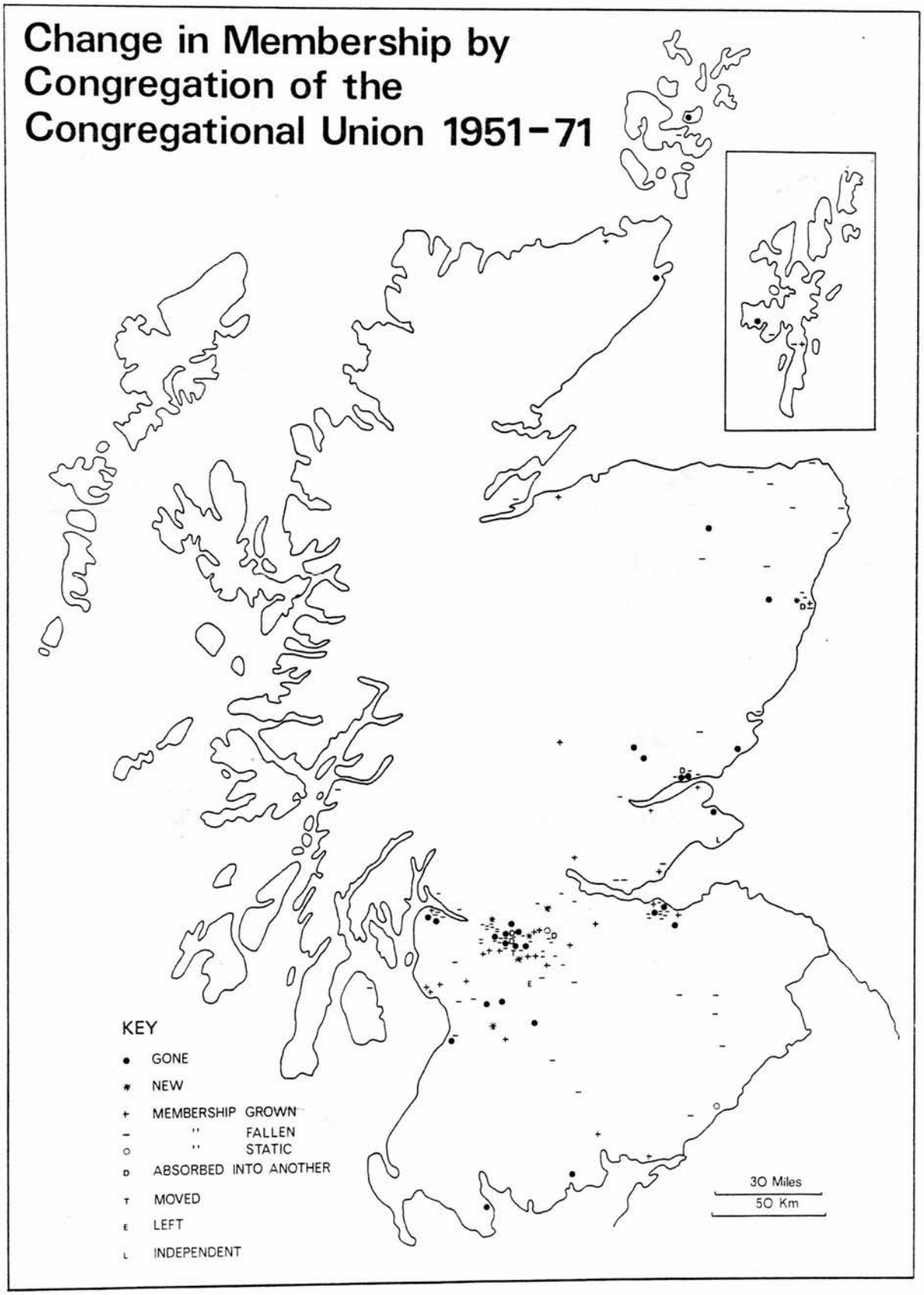

Change in Membership by Congregation of the Congregational Union 1951-71
KEY
GONE
NEW
MEMBERSHIP GROWN
" FALLEN
" STATIC
ABSORBED INTO ANOTHER
MOVED
LEFT
INDEPENDENT
30 Miles
50 Km

Figure 6.17

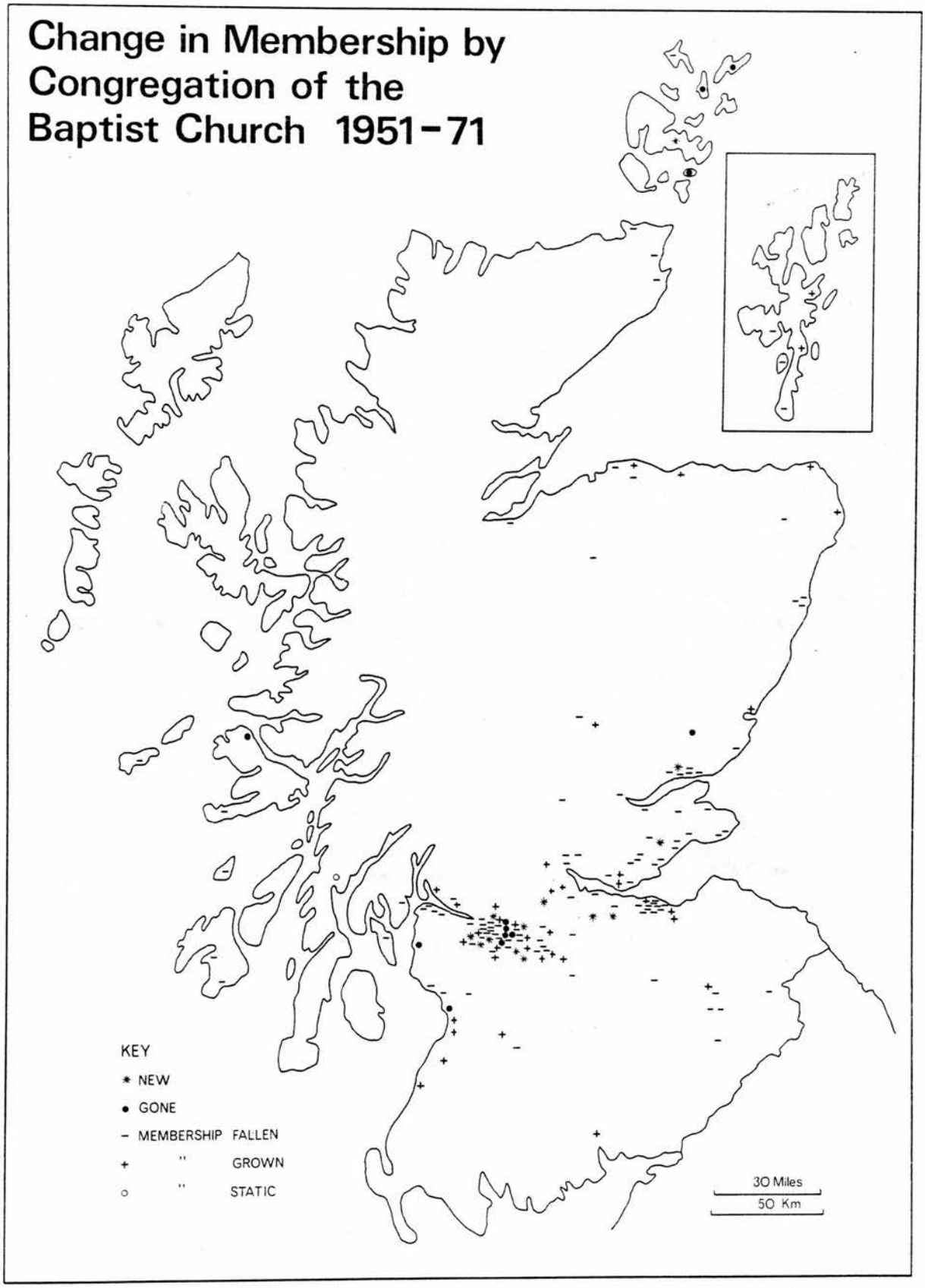

Change in Membership by Congregation of the Baptist Church 1951-71
KEY
* NEW
• GONE
- MEMBERSHIP FALLEN
+ " GROWN
○ " STATIC
30 Miles
50 Km

Figure 6.18

(10) Four Smaller Denominations

The patterns of change for four selected denominations, which have very small membership, are shown in Figure 6.19 (A - D). The Quakers (A) have experienced decline in certain large burghs of the Central Lowlands; Kilmarnock, Greenock, Paisley and Dunfermline; but elsewhere in the Central Lowlands, and outwith, the Quakers have experienced growth in the urban areas in which they are represented. In a similar fashion the Seventh Day Adventist Church (C) has declined in some urban areas; Kirkcaldy, Stirling and Kilmarnock; but has maintained a presence in others. Although the closure of certain congregations in these two denominations conforms to population loss, there must be a reason for the maintenance of congregations in the remaining urban areas since these have also experienced population loss. A reason can be sought in the 'gathering' function of these congregations which directly reflects the small size of the Churches which have to rely upon a few buildings to serve their membership.

The Church of the Nazarene (D) is, of the four being considered, the most spatially concentrated in the Central Lowlands. It shows the now familiar pattern of decline in Glasgow and Dundee and has also had notable increase on the periphery of Glasgow, the north Ayrshire coast, and a new congregation in Falkirk. New congregations were also established in Edinburgh and Kilmarnock during the period, but the Kilmarnock congregation has declined in size. The success of this denomination in the burghs of the Central Lowlands possibly reflects the predominantly working-class nature of its membership (Highet, 1960, p.47) in contrast to the predominantly

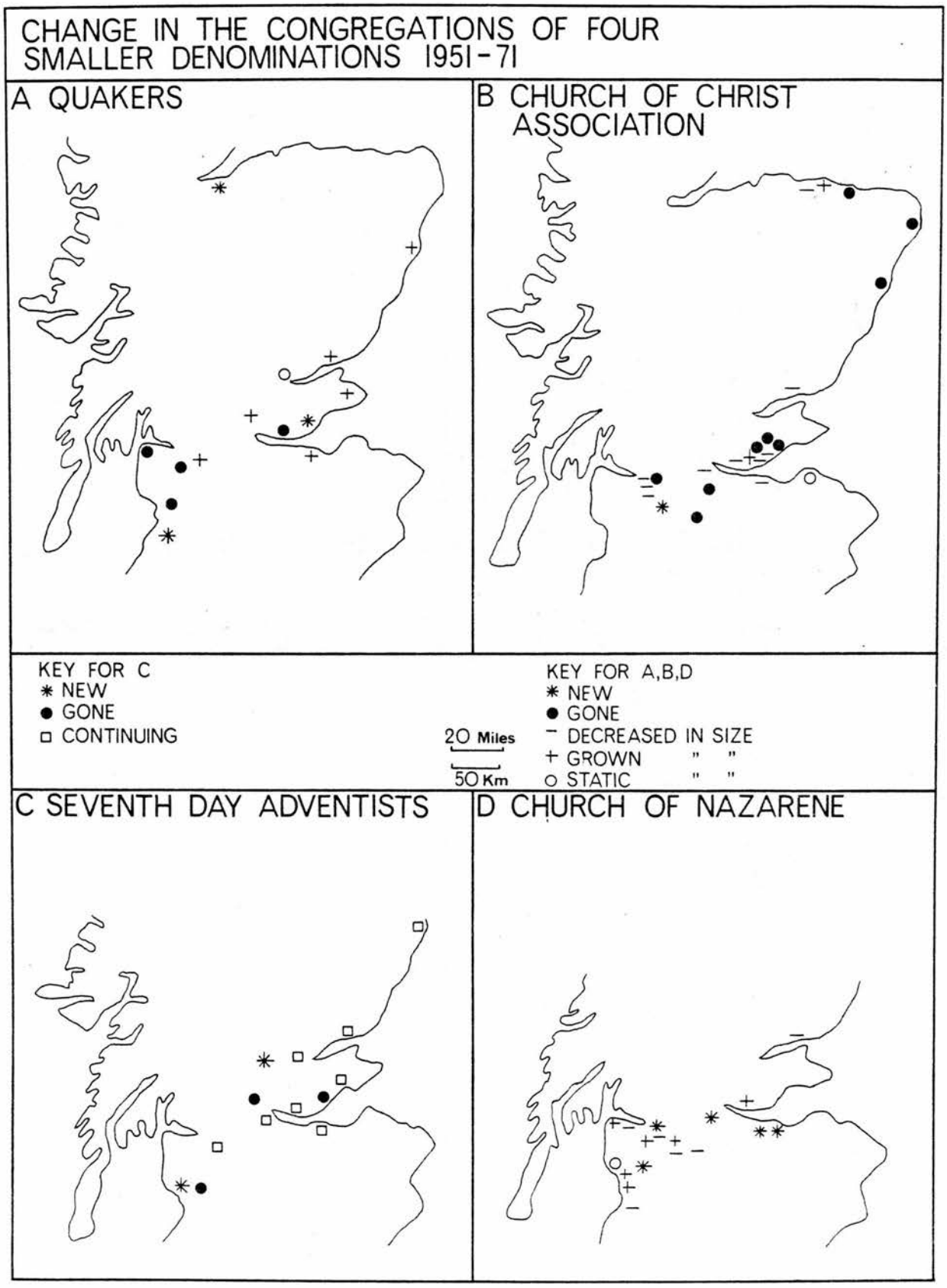

CHANGE IN THE CONGREGATIONS OF FOUR SMALLER DENOMINATIONS 1951-71
A QUAKERS
B CHURCH OF CHRIST ASSOCIATION
KEY FOR C
* NEW
● GONE
□ CONTINUING
20 Miles
50 Km
KEY FOR A,B,D
* NEW
● GONE
− DECREASED IN SIZE
+ GROWN " "
○ STATIC " "
C SEVENTH DAY ADVENTISTS
D CHURCH OF NAZARENE

Figure 6.19

middle-class derivation of the membership of both the Seventh Day Adventists and the Quakers (ibid., p.48).

Unlike these three denominations, the fourth, the Churches of Christ Association (B), is the only one to have experienced a decline in total membership over the period. This is reflected in the widespread decline in the Central Lowlands and in the North East. The only significant gain has been in East Kilbride as a result of overspill from Glasgow. With the exception of the Churches of Christ Association the spatial trends in membership of these denominations are more variable than population trends. A possible explanation is that they are liable, because of their small size and small number of congregations, to fluctuations in space of a greater or lesser magnitude than gross population has previously been able to suggest for larger denominations.

## 6.5 CONCLUSIONS

The aim of this chapter has been to understand change in church membership by examining the relationship between population change and church membership change. The principal finding is that population change as an aggregate variable gives a reasonable level of explanation of church membership change in space, even at the civil parish level where, especially in the case of the Church of Scotland, a large number of cases are involved. This understanding can be much improved when one examines the components of church membership and population change. The evidence of residuals from regression for the Church of Scotland has helped to develop hypotheses about the form of the relationship between population and

church membership. The main hypotheses concern population movement and its differential nature and consequent effects upon church membership. Further indices from the Census for 1971 have been tested for the Church of Scotland and the Roman Catholic Church that give support to these hypotheses. Having described and developed an understanding of church membership and its relationship to population this analysis has achieved only a moderate operational prediction in regression terms. Given the additional variables that have been indentified in the examination of a range of denominations, especially social class and age, it is possible to develop the explanation for other denominations. As such the model, as it stands, has indicated some of the relevant variables that could be used in an estimation of future spatial trends in church membership given the population predictions provided by the Registrar-General.

There are, however, two reservations which must be attached to this analysis. One reservation is that the approach which has been adopted has been to examine change between the years 1951 and 1971. The analysis could have been sub-divided into two smaller periods; 1951 to 1961; and 1961 to 1971. Such a disaggregated approach might have been justified because the numerical peaks in membership occurred at different times for different denominations. An argument against developing the analysis in this way might be provided by the evidence of the membership trends for the Presbyteries of the Church of Scotland which were mentioned earlier in this chapter. The apparent peak in the aggregate membership of the Church of Scotland in 1956, in fact, represents the cumulative effect of a

variety of trends at a disaggregated level. It is possible then that it is not the timing of the trend in membership which is important, but rather its spatial form.

Another reservation concerns the fact that the analyses have been conducted at the macro-scale. There is a need for caution in the interpretation of inference about individual behaviour from aggregate data. The results from this study would be strengthened by confirmation from behavioural analysis which could test hypotheses such as the relationship between migration and the retention of church membership. Although the behaviour of church members is examined at a micro-level in Chapter IX, the survey is of existing members. To test the hypotheses which have been developed in the present chapter it would be necessary to survey both existing and former church members. Consequently the conclusions that are drawn in this chapter have to be framed with caution.

Viewed as a whole, this chapter has presented a different model of change in church membership to the more conventional secularisation hypothesis. In fact, change in church membership appears to be influenced by a combination of geographic mobility and demographic and socio-economic factors. This is not to deny that the social forces of secularisation which result in the rejection of institutional religion do not exist, but what is claimed is that this generalised concept cannot on its own provide the explanation of spatial change in church membership, but must rather be seen to operate with a variety of factors in space. This conclusion conforms to that of the previous chapter which demonstrated that secularisation must take account of mobility, socio-economic and

and demographic factors if it is to encompass the variety of temporal change in church membership.

Given the description of the pattern of change through time and space, in this and the previous chapter, and having developed some understanding of the factors that are involved, the objective of the following chapter is to assess institutional reaction to the changes in demand.

# CHAPTER VII

# THE PROVISION OF CHURCH FACILITIES DURING THE POST-WAR PERIOD

# CHAPTER VII

## THE PROVISION OF CHURCH FACILITIES DURING THE POST-WAR PERIOD

The examination of demand in Chapters V and VI provides a basis for an assessment of supply provided that a limitation is borne in mind. An assessment of supply is constrained by the fact that the observed patterns of demand are dependent to some extent upon changes made to supply during the period. For example, the Catholic Church has suffered a 'leakage' of its recorded population through migration, and so it is necessary to question whether the failure to provide new facilities in destination areas might have been responsible for the losses in population. By contrast, the effects of adjustments to supply made by the Church of Scotland pose a different problem. Since it is the national Church it provides facilities in nearly all of the civil parishes of Scotland such that in 1951 the people of 17 civil parishes had to share the facility of another, and by 1971 this number had only risen to 43. Consequently, a failure by the Church of Scotland to provide a church in a new location might be less likely to cause a loss of membership, whereas it might do for other denominations in which the proximity of an existing facility was less assured. Regardless of denomination it is clear that demand and supply represent ongoing processes and so it is not

possible to use the analyses of demand which have been executed thus far as a means of identifying precise localities in Scotland where adjustments to supply are necessary.

There are two ways in which such precise locations might have been identified. These would have been most relevant to the national Church but further investigation showed that they were inappropriate to any denomination. Little assistance is offered in a practical planning context by an examination of the ratio of members to Church facilities. Such statistics are meaningless for civil parishes that contain more than one facility of the same, or of different, denominations because an average figure does not take account of the operation of choice in creating cogregations of unequal size. This is one of the reasons for studying the patterns of congregational behaviour in Chapter IX. Similarly, little practical assistance is given by the calculation of ratios of church facilities to total population for parts of Scotland since local variations in population characteristics produce differing proportions of church membership within the total population as well as a variety of denominational allegiance. Moreover, it is a moot point whether any Church should plan for the entire population. The question has, however, become redundant because the practicalities of finance require that a denomination plan for its known membership rather than a potential membership. As a result the need for a facility can be gauged only from a detailed knowledge of a locality and its population characteristics.

It seems therefore that the analysis of demand at any scale other than the micro-scale cannot lead to recommendations for

supply in particular locations. However, the analyses of post-War demand which have been executed in Chapters V and VI can play a constructive role in a review of supply as the following section shows.

## 7.1 IMPLICATIONS OF THE POST-WAR CHANGES IN DEMAND

There are two ways in which a knowledge of demand can assist in an examination of the provision of church facilities:

(i) The analysis of demand has involved the identification of the components of change in church membership, principally for the Church of Scotland, as well as the isolation of functional relationships and possible causal variables for several denominations. Each of these results have implications for the nature of supply in the Church. Notable among the components of change in the Church of Scotland was that of the decline in the number of admissions on profession of faith. Since these play a major part in the decline of total membership it would be advantageous if the Church were to devote a major share of its ministrations to this constituency of persons who would be expected to become church members. As the greatest decrease in new communicants has occurred in the urban Presbyteries it might be wise if the Church of Scotland was to focus its efforts in such areas.

The major factor in the decline in the membership of the other denominations which have been studies, and one that is to the Church of Scotland at least as important as the fall in admissions,

is mobility. The link between migration and lapsing from church membership is the most significant functional relationship to be observed. This relationship is important not only because of its implications for the Church if it continues, but also because it is one of the few variables over which the Church has an opportunity to exercise its influence. Other variables such as economic change and demographic structure have been shown, in the two previous chapters, to influence church membership but these are exogenous factors over which the Church has no control. On the basis of the relationship between mobility and membership and using population projections, it may be possible to predict changes in the total membership and its distribution and so assist in planning.

An opportunity therefore exists for the Church to influence membership change if it can take greater note of the importance of mobility in relation to lapsing from membership. However, mobility is possibly an insuperable problem for the smaller denominations because their smaller stock of facilities means that a member is more likely to be further from a church after migration than in a larger denomination. On the other hand, while a larger stock of facilities poses the problems of legacy and inertia, the larger denomination has more opportunity to ensure that migrants do not lapse from membership since a migrant is more likely to be near to an existing facility in a destination area than is the case in a smaller denomination. This is especially true for the Church of Scotland which , as the national Church, could not only make efforts to trace persons who have removed without a certificate, possibly through the elder (a layman delegated by the clergyman to maintain contact with a portion

of the congregation), but could also follow up removals without certificate. When a migrant intends to renew membership in a new location, demonstrated by the decision to acquire a certificate for removal, it might be possible to more actively encourage this person to renew membership in the new parish and so ensure that the overall deficit between removals and admissions by certificate was reduced. Procedures such as the notification of a removal by certificate to the minister of the destination parish are under-used. In 1951 only 7009 notices were sent, representing 19 per cent of removals by certificate in that year, and although notification has become more frequent in the intervening period notices were, in 1973, only 36 per cent of the number of removals by certificate. If more use were to be made of notification it would ensure that the migrant could be contacted in the destination parish and the chance of lapse through delay could be reduced.

(ii) The analyses of demand also included the description of the patterns of change over the post-War period. Given the observed changes in demand it is possible to assess the changes that have been made to supply during the period, provided that the partial influence of supply upon demand is borne in mind when drawing conclusions. The following question can be posed:

(a) How has the Church reacted and what effect has its reaction had?

A supplementary question is:

(b) To what extent do Church policies and decision-making processes account for the nature of adjustments made to supply?

Answers to these related questions are elaborated in the following section.

## 7.2 INSTITUTIONAL REACTION

### (1) The Smaller Denominations

The scale of the planning problem is least for these denominations simply because of the small numbers of members that they have to serve, and the small stock of church facilities which they have at their disposal. This means that these denominations generally have churches in central locations, such as the cities and larger towns of Scotland, and gather their members from a wide area. If the support for an individual congregation declines, the Church as a whole has such limited resources that it cannot afford to assist a weak congregation. If support arises in a previously unserved area, the placement of a new facility is often the responsiblity of local initiative. However, some of the small denominations do have a centralised decision-making body concerned with supply; for example, the Church of Nazarene and the Seventh Day Adventists do, while the Quakers and the Churches of Christ Association do not. There has been one exception to this rule in that the congregations of the Glasgow District of the Churches of Christ did combine to build the church extension in East Kilbride New Town.

### (2) The Congregational and Baptist Unions

Both of these denominations have experienced a decline in membership in the post-War years. Yet earlier maps showed that while the Congregational Union (Figure 6.17) has had a net loss of churches over the period the Baptist Union (Figure 6.18), which has the smaller membership, not only has more churches than the Congregational Union

but has also gained more churches than it has lost during the post-War period. Many of these gains in the Baptist Union represent church extension on the outskirts of Glasgow. Since both denominations have basically similar areal distribution and have both experienced decline in their membership, the reason for these differences in supply must be sought in policy rather than from changes in demand.

The Congregational Union has a central organisation with several national committees. These represent the responsibilities which the Union considers can be effectively fulfilled by the churches as a whole; church extension, the promotion of missionary work at home and the assistance of congregations needing support (Year Book of the Congregational Union of Scotland, 1966-7, p.3). Their functions are primarily to give advice and financial support. Church extension is apparently cautious with the redistribution of church resources being favoured:

> Although the closure of Churches is to be regretted their dispersed members may take heart from the knowledge that the sale of their buildings makes possible the opening of new Churches in new housing areas where the need for them is acute.
>
> (Ibid., p.86).

This is not to suggest that the smaller congregations, especially typical of rural areas, are discouraged from remaining in existence. Concern was expressed in 1966 regarding the numbers of small churches which had recently closed, and the possibilities for giving increased assistance were discussed (Ibid., 1967-8, pp.85-8).

The Baptist Union also has national committees for home mission and church extension. These committees perform two functions. The first is one of advice and support, as in the Congregational Union. The second is that the actions and policies of these committees, documented in their reports in the Year Books, reflect a more active concern for the conservation, and lately the expansion, of facilities of the Baptist Union. A notable distinction is that the Church Extension Committee of the Baptist Union states that it seeks to 'plan' extension policy although, like the Congregational Union, the initiative for an action is still ultimately vested in the individual congregation. An example of the planning function of this committee is illustrated by the statement:

> The Committee has been giving due consideration to the possible growth areas in Scotland, namely in the Borders, the Lothians and Easter Ross and recognises that the Union must accept responsibility for stimulating Denominational concern for the spread of the Gospel in new development areas (The Scottish Baptist Yeark Book, 1970, p.33).

An example of the active role played by the Baptist Union is illustrated by the concern expressed in a later report of the Church Extension Committee when discussing prospects for the Lochaber area:

> One of the great needs of such a new area is not that we find ministers to pioneer the work, but that we should find Baptist members who will commit themselves to go to work in these areas with a deliberate view to establishing a Baptist witness.
>
> (Ibid., 1973, p.38).

(3) The Episcopal Church

This denomination has experienced a decline in communicant membership since 1962 coupled with a redistribution of demand.

Losses have occurred in many rural parishes and urban centres, but there have also been gains in both the existing congregations in the suburbs of the Central Lowlands and in northern growth areas such as Lochaber. However, there have been few adjustments to supply other than contraction. The losses and gains to the stock of facilities are shown in Figure 7.1. There have been many losses to the Church in the form of those congregations which have lost their identity through amalgamation with another or have ceased to exist. The numbers of linked charges are not shown on this map but they were almost as numerous in 1951 as they were in 1971: 25 of the 43 linking arrangements which existed in 1951 were still in existence in 1971 and of the remainder, one became independent, and the rest were amalgamated. Since 1951 there have been several new linking arrangements, especially in the Diocese of Aberdeen and Orkney. The map does, however, show that few charges have been newly created in the period and that most of these occurred in three of the New Towns: East Kilbride, Glenrothes and Livingston. The net result is that the total number of congregations has fallen from 361 to 319 (including dependencies) between 1951 and 1971, giving much the same size distribution of congregations but with a lower mean value of 253 instead of 291.

Figure 7.1 illustrates the polarised nature of adjustment to supply in the post-War period within two main areas: the North East (Diocese of Aberdeen and Orkney) and in the West Central Lowlands (Diocese of Glasgow and Galloway). This is most probably a result of the self-sufficiency of each Diocese since, although the national body of the Representative Church Council is the recognised organ of

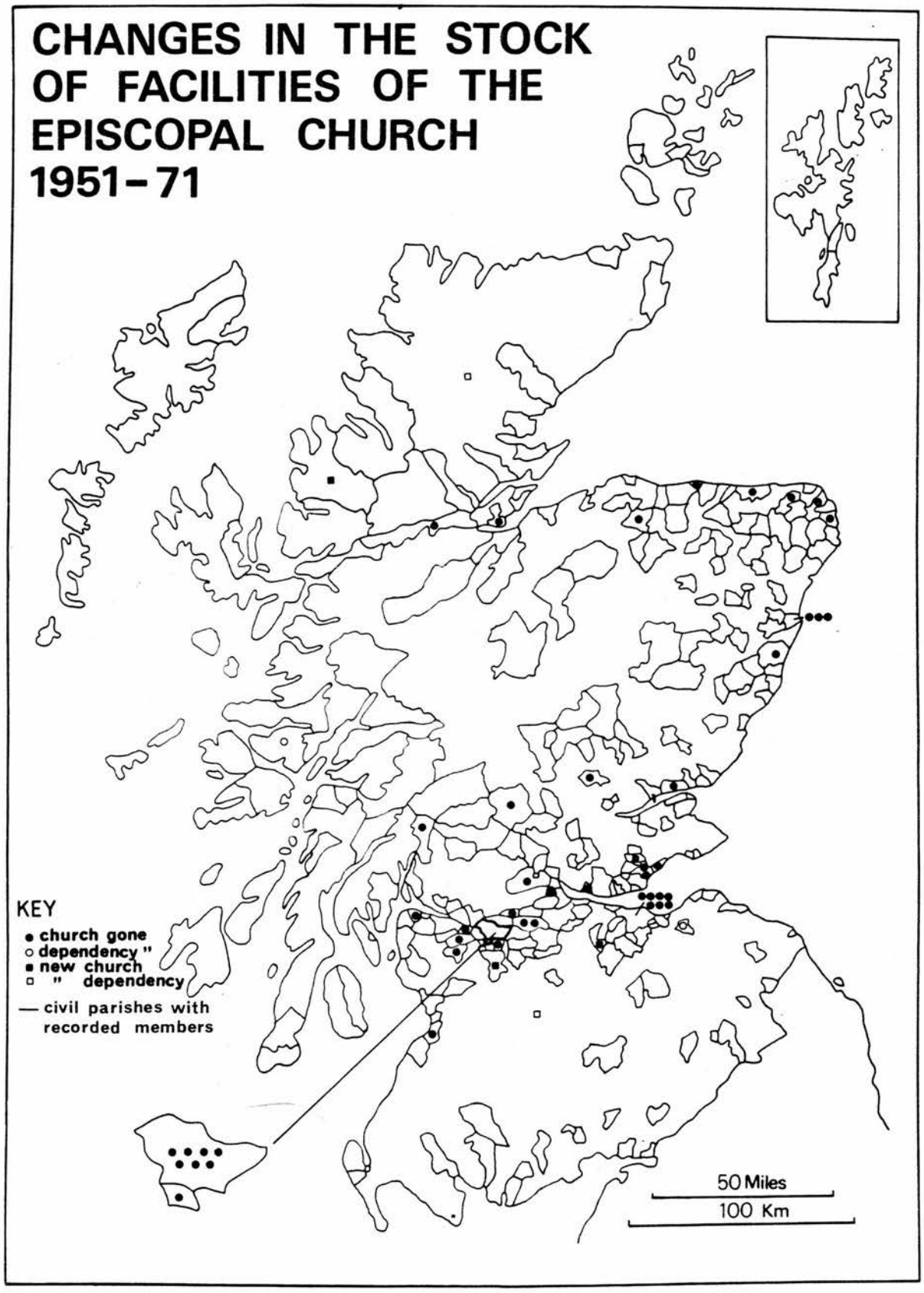

CHANGES IN THE STOCK OF FACILITIES OF THE EPISCOPAL CHURCH 1951-71
KEY
• church gone
○ dependency "
▪ new church
▫ " dependency
— civil parishes with recorded members
50 Miles
100 Km

Figure 7.1

the Church in matters of finance, the Bishop has ultimate control in all other matters of the Diocese. An example of the autonomy of the Bishop can be drawn from the Code of Canons 1929 which operated during the study period:

> If at any time it shall happen that a charge which has attained to the position of an Incumbency shall become so reduced in numbers or in financial resources that the constituion of the church can no longer be kept in operation, nor provision made for the maintenance of the ministry it shall be competent for the Bishop, with the consent of the majority of the Presbyters present in his Diocesan Synod and qualified to vote, to declare that such a charge shall cease to be an Incumbency.
>
> (Ibid., Canon XXXV, p.40).

That the efforts of the Church lack co-ordination has been recognised lately. Two improvements have been made to the existing procedures after 1971. The first has been the formation of a national Policy Committee which comprised all seven Bishops. This committee has jointly recognised the common problems facing the Church and the need for united action which includes, for example, an overall reduction in the number of stipendiary clergy of one third (The Ninety-Eighth Annual Report of the Representative Church Council, 1974, pp.27-56). It is still believed that the Diocese is in the best position to implement the changes which have been formulated nationally, and this is recognised in a supplement to the Code of Canons in 1973-4. This supplement has instituted a statutory requirement for forward planning by each Diocese in the form of a readjustment of charges committee which is required to produce recommendations for the adjustment of supply on the basis of:

> . . . existing needs, expected population trends, means of transport, availability of clergy, and financial requirements and resources...
>
> (Supplement to the Code of Canons, 1975, p.4).

Furthermore this Code requires that the possibility of adjustment also be considered automatically whenever a vacancy arises in a charge and that the Bishop should consult the Committee as to its recommendations.

(4) The Roman Catholic Church

For most of the post-War period the Catholic population has been increasing, with growth in the West and East Central Lowlands and a redistribution of population out of Glasgow largely as a result of local authority housing and overspill policies. The greatest problem in surveying the changes in supply made by this denomination in these years is that of 'leakage'. An examination of the movement of population from the principal concentration of the Catholic population in Glasgow did not suggest that this loss was a result of migration to areas that were completely unserved by the Catholic Church. It did suggest, however, that this loss of recorded population could result from a failure to record newcomers in some migration destination areas because the provision of church facilities was sparse compared to the source area. This was especially true of Ayr, Renfrew, Fife, Lothian and Peebles, Stirling and Clackmannan and possibly Dunbarton and Renfrew executive areas.

The 'leakage' remains an entity about which one can only speculate. The institutional adjustments in supply (Figure 7.2) correspond instead to the size and location of recorded changes in

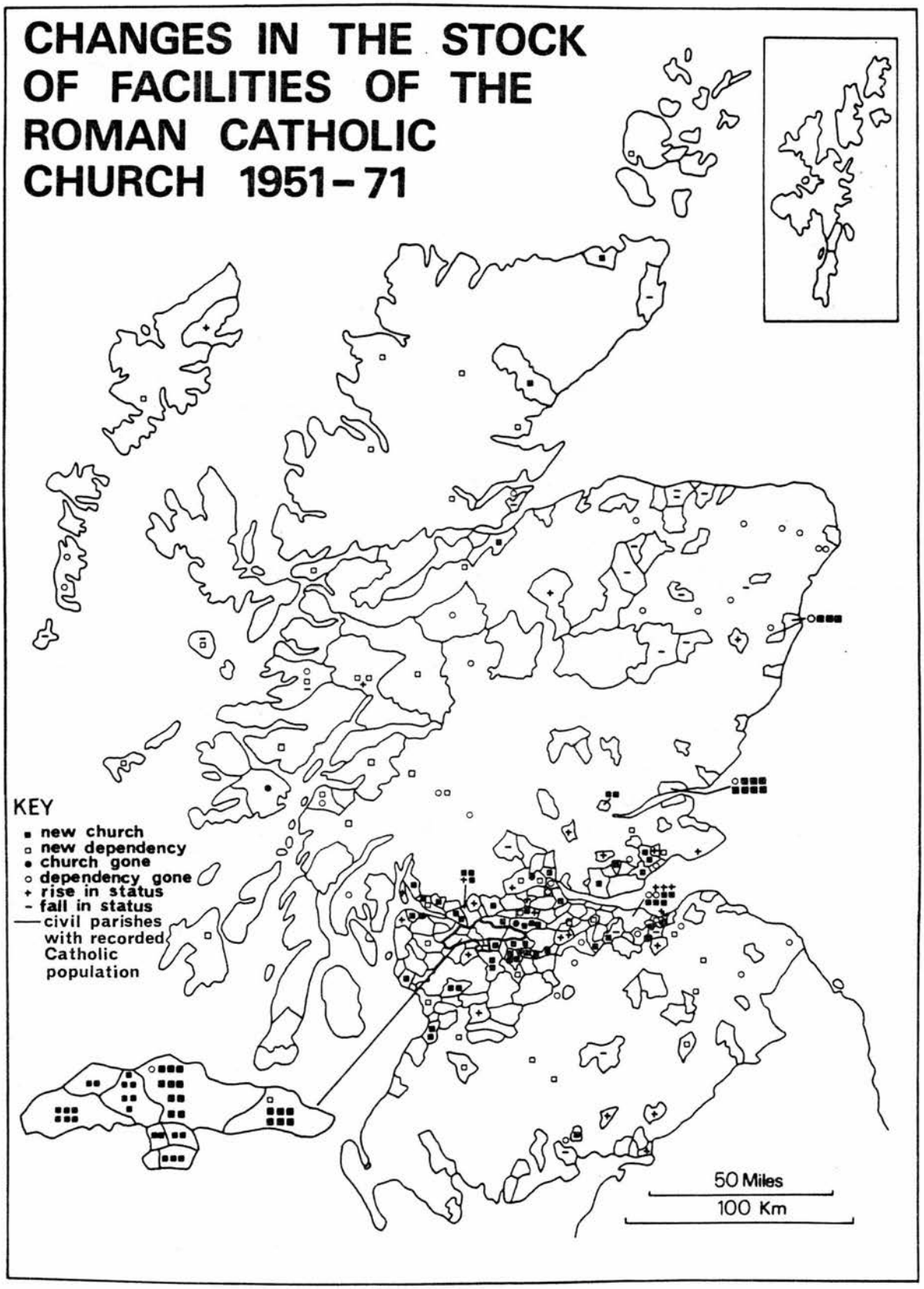

CHANGES IN THE STOCK OF FACILITIES OF THE ROMAN CATHOLIC CHURCH 1951-71
KEY
new church
new dependency
church gone
dependency gone
rise in status
fall in status
civil parishes with recorded Catholic population
50 Miles
100 Km

Figure 7.2

demand. The adjustments in rural areas are of a minor nature since they mainly involve dependent congregations whereas in urban areas, where the population changes are larger, the most common form of adjustment concerns independent congregations. The predominant impression is one of expansion with the exception of the North East where several dependencies have been closed and other congregations demoted in status. The net result is that the number of Catholic congregations, including dependencies, has grown over the years 1951-71 from 485 to 591. The size distribution in Figure 7.3a shows that while gains have occurred throughout the range most are concentrated between one and three thousand. The largest parishes which were formerly in Glasgow have been reduced in size such that the mean size of all Catholic parishes in 1971 became 1390 compared with 1555 in 1951.

As in the Episcopal Church the Diocese, within which the Bishop is autonomous, is responsible for these changes. Unlike the Episcopal Church, however, the problem of adjustment has been one of expansion because the Catholic population has been growing for most of the period, there is no problem of a legacy of over-churching, and those losses which have occurred have been concentrated mainly within the Glasgow area. All of these factors combine to simplify the problem of adjustment. Church extension in the Catholic Church is based upon local observation such that if a number of Catholics are known to require separate services, particularly because they are considered to be too far away from an existing Catholic church, then an informal facility will be arranged by using a school building

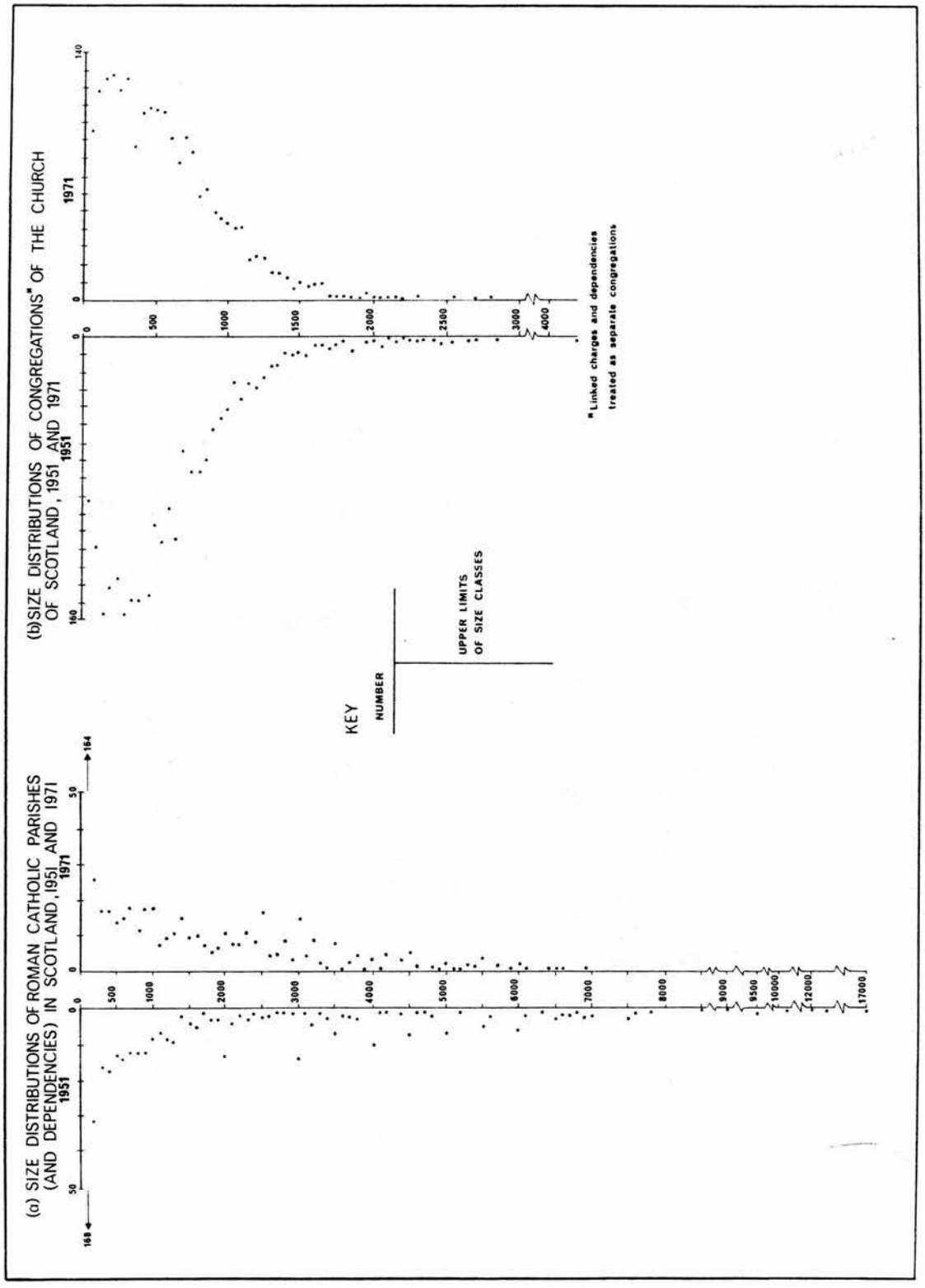

(a) SIZE DISTRIBUTIONS OF ROMAN CATHOLIC PARISHES (AND DEPENDENCIES) IN SCOTLAND, 1951 AND 1971
1951
1971
(b) SIZE DISTRIBUTIONS OF CONGREGATIONS* OF THE CHURCH OF SCOTLAND, 1951 AND 1971
1951
1971
KEY
NUMBER
UPPER LIMITS OF SIZE CLASSES
*Linked charges and dependencies treated as separate congregations

Figure 7.3

or other temporary accommodation. Only when a sufficiently large community has evolved can a full facility be established with the aid of finance lent by the Diocese. A formal territory will also be assigned to the congregation.

Because of the relatively straightforward nature of the task facing the Catholic Church the adjustments to supply appear to have been appropriate. However, there is the problem of 'leakage' as well as a problem of co-ordination. The latter has been associated with Glasgow. The losses from Glasgow represented an influx of population into the surrounding Dioceses which has necessitated financial concessions by Glasgow. The most recent concern is with Livingston New Town which has posed the Archdiocese of St. Andrews and Edinburgh with the problem of providing facilities for a large population which emmanated mainly from another Diocese.

(5) The Church of Scotland

In the post-War years the Church of Scotland has suffered widespread but small rural losses as well as larger uban losses alongside gains especially in the suburbs and New Towns of the Central Lowlands. Not only has there been a redistribution of demand but total membership has also declined, presenting the denomination with the need to rationalise its resources. This task is made all the more difficult by the legacy of previous provision of church facilities which often reflected the duplication arising from competition between the pre-Union Churches. So what began as a problem of rationalising resources after the Union of 1929 was

exacerbated by the redistribution of demand in the 1930s and in the post-War years. This twofold need to adjust supply was recognised in 1951:

> The need for strict economy in the use of ministerial resources is greater than ever, ... There is still considerable duplication of charges where one would suffice to meet the spiritual needs of the community.
>
> (Reports to the General Assembly, 1951, p.144).

That the problem of supply is ongoing has been recognised even at the end of the study period:

> There are those who believe that with the passage of some forty-two years since the Re-Union of the Churches, the work of readjustment has almost been concluded, particularly in the rural areas. Today, however, after all these years this task is still very necessary ... (the Church) is called to minister to people, and in these days when so many of our people are moving from one part of the country to the other, the Church too must be on the move.
>
> (Ibid., 1971, p.230).

There are a variety of methods which are available to the Church to assist in the task of readjustment and these can be divided into three groups. The first group comprises linking and union of charges. The second group includes physical changes to the stock of charges: dissolution; transportation; and church extension. The third group includes a variety of ministerial adjustments which are used to facilitate the achievement of the first two groups of adjustments. The aim of the ministerial adjustment is to provide alternatives to the security of tenure of a minister who is normally appointed ad vitam aut culpam (or until the age of 70 for induction

after 1972). In this way the possibility of adjustment to charges which are thought to potentially require adjustment and have recently been vacant is not negated by the security of tenure of the appointee.

The first group of adjustments to charges, union and linking, have been the most frequently used by the Church of Scotland. The linking of two or more congregations, which can be temporary or permanent, involves the maintenance of separate congregational identity and facilities while sharing the services of one minister. A union involves the creation of a single charge, usually with one place of worship, from two or more congregations under one minister. Figure 7.4 shows that linking is a method of adjustment that is mainly used in rural areas since it makes it possible to reduce the costs of ministry without causing the members of one congregation the inconvenience of having to travel further to a single shared facility. Experience has shown that a linking is most effective if the two places of worship are not less than two, but not more than ten, miles apart. Figure 7.5 shows that unions have been a predominantly urban device. Both methods of adjustment are contingent upon a vacancy arising in one of the congregations to be considered for readjustment. The responsibility to report a vacancy rests with the Presbytery but the outcome is dependent upon the approval of the national Committee on Unions and Readjustment. Experience has shown (Memorandum on Procedure, 1966, p.1) that the Presbytery should take account of five factors in recommending readjustment:

(a) the membership and general condition of the vacant congregation

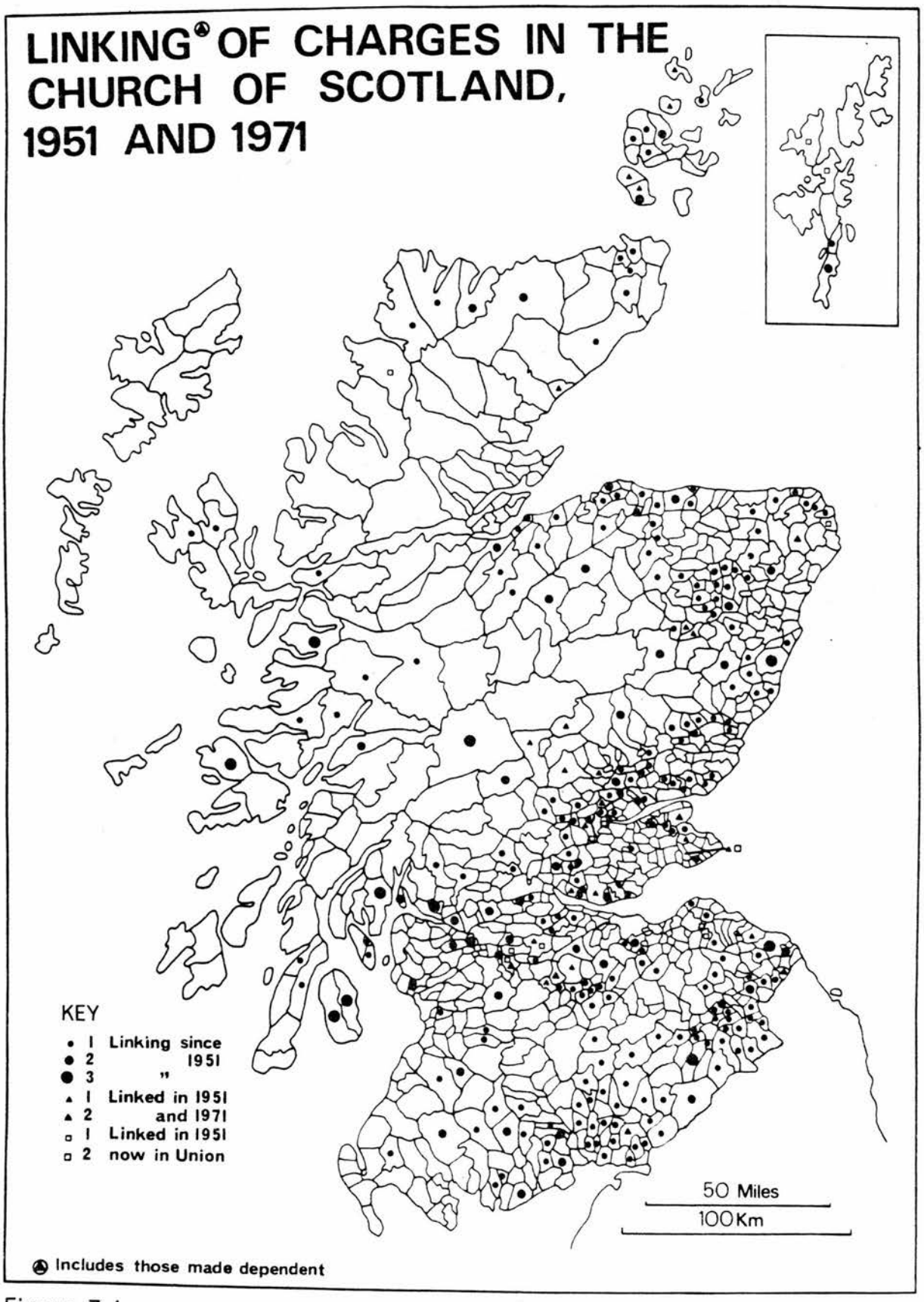

LINKING® OF CHARGES IN THE CHURCH OF SCOTLAND, 1951 AND 1971
KEY
• 1 Linking since
● 2 1951
● 3 "
▲ 1 Linked in 1951
▲ 2 and 1971
▫ 1 Linked in 1951
▫ 2 now in Union
50 Miles
100Km
® Includes those made dependent

Figure 7.4

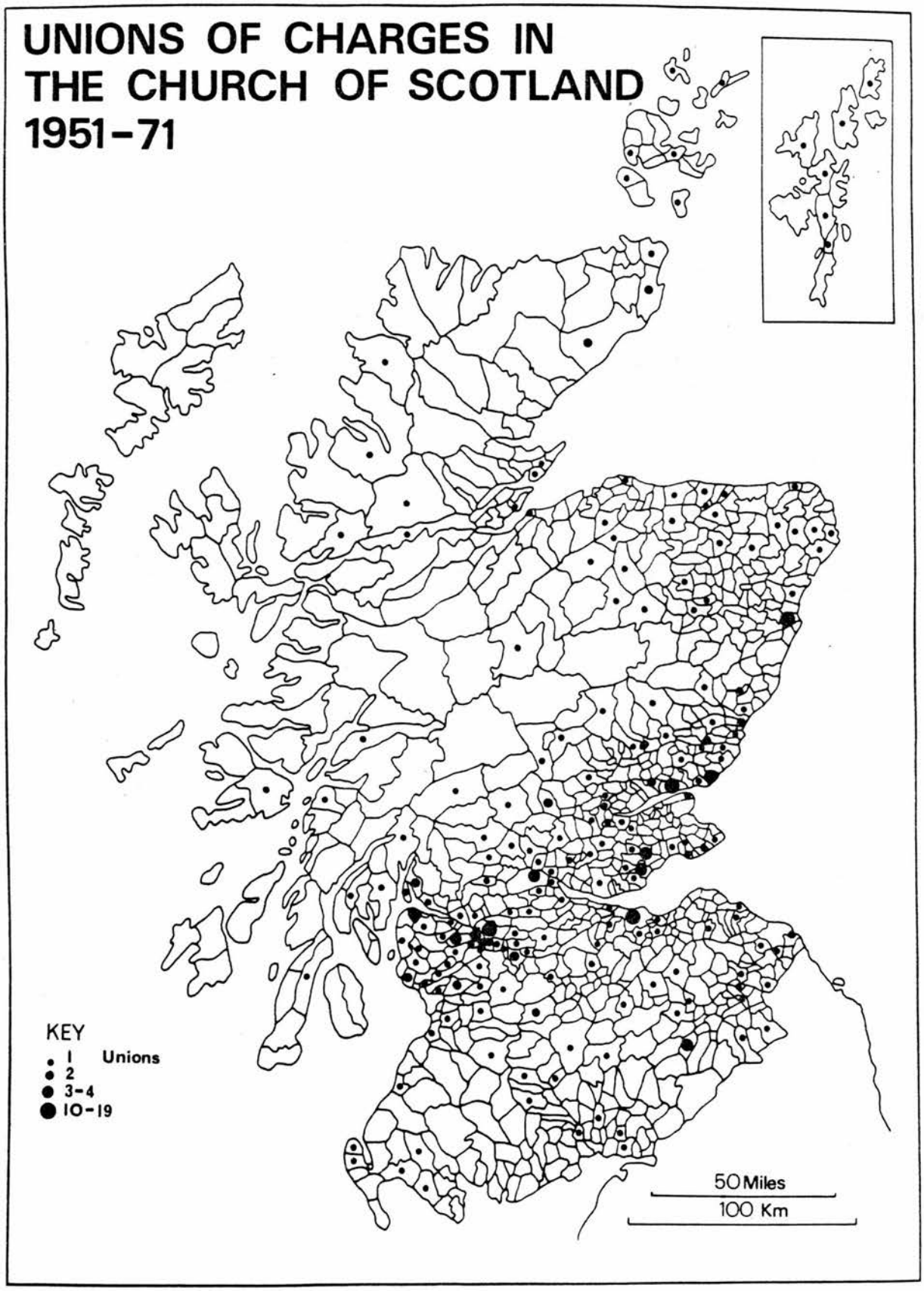

UNIONS OF CHARGES IN
THE CHURCH OF SCOTLAND
1951-71
KEY
1
2
3-4
10-19
Unions
50 Miles
100 Km

Figure 7.5

(b) the population and extent of the parish and any changes taking place or in prospect, either in it or in its neighbourhood, e.g., erecting of new housing

(c) the number of congregations and ministers sufficient to serve the spiritual needs of the community

(d) the number of other congregations and Church agencies in the vicinity, their circumstances and resources

(e) the number of ministers available to serve the whole Church.

The comprehensive nature of these considerations, and the supervision of a national committee, suggest that the patterns of readjustment in the post-War period should have been logical in nature.

It must be recognised, though, that the process of readjustment is dependent upon the occurrence of vacancies which seems to imply that it is not possible to have a plan in such circumstances, but rather a policy. However, the need for planning has been formally realised:

> The Committee learnt that some Presbyteries were making surveys and plans for readjustment within their bounds with a view to future vacancies. As this raised important questions of policy, the Committee gave careful consideration to the advisability or otherwise of such surveys, and decided to issue a Memorandum.
>
> (Reports to the General Assembly, 1951, p.144).

This memorandum recommended that such surveys continue, and that provisional schemes for readjustment be prepared by Presbyteries, notified to the national Committee, and be used as the basis for future decisions. This concern has strengthened throughout the

period such that the needs for future planning were reiterated in 1974 with the establishment of a sub-committee of the national Committee to draw together and assess the plans made by Presbyteries for readjustment. In this way it will act as a 'central clearing-house' for all matters relating to long-term planning (Ibid., 1974, p.216).

The second group of methods of readjustment - transportation, dissolution and church extension - have been relatively under-used in the post-War period, as can be seen from Figure 7.6. It might be expected that dissolution would be infrequent since it would be rare for depopulation of an area to be so great as to leave no church members who could benefit by being officially joined with a nearby congregation through linking or union. However, transportation and church extension are both methods of adjustment which could ensure that facilities are provided for inadequately served areas of population growth, and so it would be expected that their use would be frequent. Church extension is the responsibility of the Presbytery and a national committee of the Home Board. Although the need for extension is realised, the Church faces the restrictions upon such activity that have been increasingly posed through the post-War years by finance. If the cost of extension has become restrictive then transportation of existing charges from areas where they serve a small membership to areas of population growth ought to provide a solution. Yet, transportation has been little used, even although the map (Figure 7.6) does present an unfair picture in that only those transportations occurring across civil parish boundaries are shown.

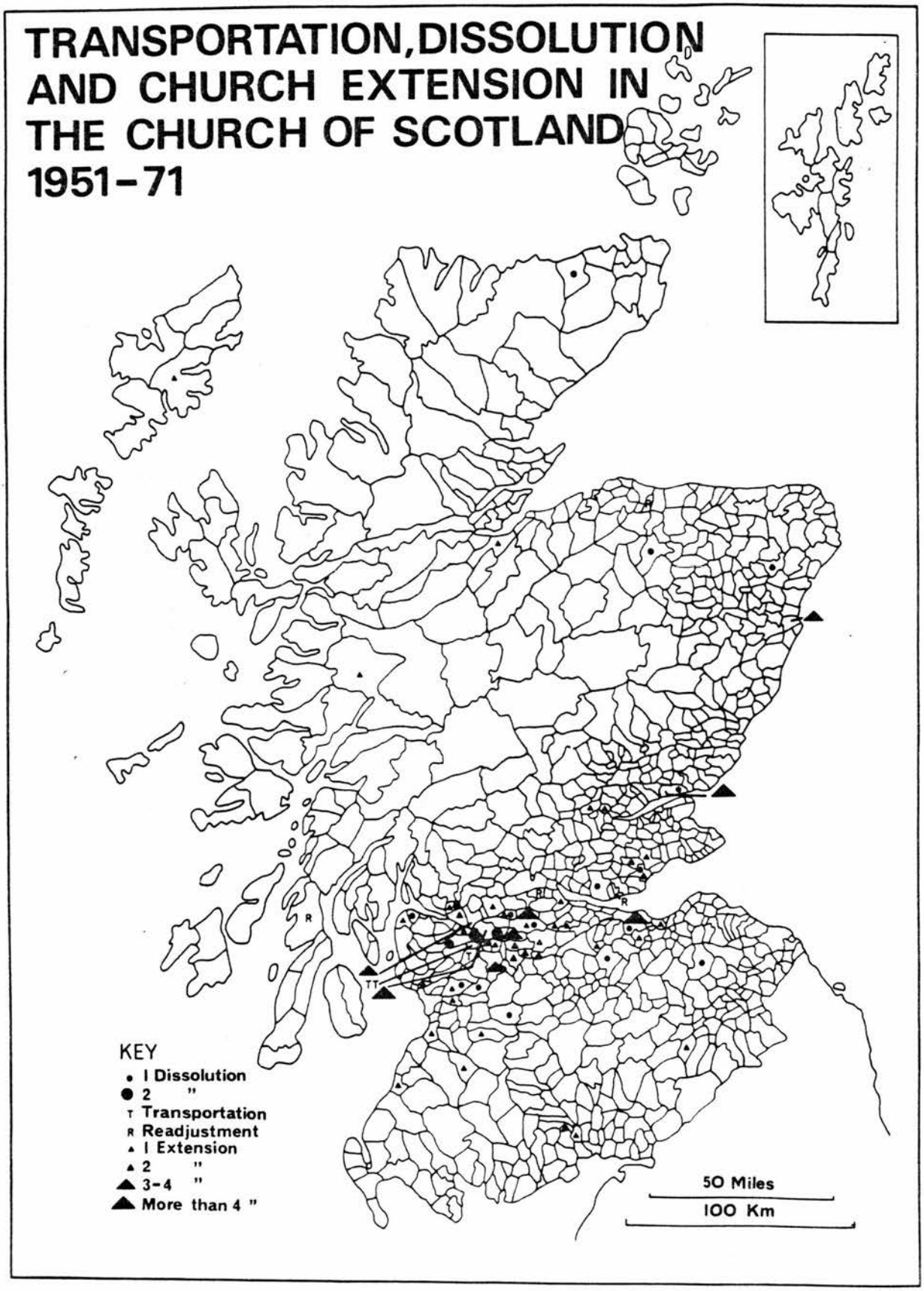

TRANSPORTATION, DISSOLUTION AND CHURCH EXTENSION IN THE CHURCH OF SCOTLAND 1951-71
KEY
• 1 Dissolution
● 2 "
T Transportation
R Readjustment
▲ 1 Extension
▲ 2 "
▲ 3-4 "
▲ More than 4 "
50 Miles
100 Km

Figure 7.6

That transportation could be a useful method of adjustment was recognised even at the beginning of the period:

> The situation created by the transference of population to new housing areas receives the constant attention of the Committee. It is obviously impossible to provide the ministers and the resources required for the new areas, unless a corresponding reduction in the number of charges and agencies is effected in districts from which the people have moved. Wherever a suitable opportunity occurs the policy of transportation is recommended.
>
> (Ibid., 1951, p.144).

Contrary to these recommendations, the policy of transportation remained little used and an attempt was made to account for this in 1956:

> That more cases of transportation have not taken place may be due to the fact that, while office-bearers may be convinced in their more intimate meetings with representatives of the Presbytery and the Committee of the desirability of such a step, members of the congregations are more slow to appreciate the need.
>
> (Ibid., 1956, p.212).

The net result is that while the rationalisation of the Church's resources in terms of the removal of duplicated facilities has proceeded well in the post-War period, the Church has been less successful in achieving the redistribution of resources into new areas. The size distribution of congregations (Figure 7.3b) shows that the number of congregations has fallen from 2378 to 2093 with many losses from the lower size range. The reduction in the number of very large congregations has balanced these losses such that the mean size of congregation has remained virtually unchanged at 559 in 1951 and 556 in 1971.

The reasons for the failure to achieve a significant redistribution of facilities can perhaps be partly sought from the goals of this denomination. The denomination is, for example, aware that it is the national Church and that it is obliged to serve large rural areas where the total population is small and congregations are consequently small:

> In the fulfilment of its task the Committee has always kept before it the needs of the sparsely populated rural areas. Every vacancy has been considered against the background of the Church's responsibility for providing the ordinances of religion in every parish in Scotland.
>
> (Ibid., 1971, p.230).

Even with a policy of linking there are still many small congregations whose existence is only made possible by a nationally organised system of aid-giving and aid-receiving. For example, in 1973, 30 of the 59 Presbyteries drew more aid than they gave and 22 Presbyteries had more aid-receiving congregations than aid-giving congregations, (Pickford and Wolfe, 1977). The aid-receiving Presbyteries tend to cover rural districts which means that services are made possible in many areas of the country only because of the support of other more highly populated areas. The Church has also questioned its responsibilities in a wider context than simply rural areas. But the need for financial survival has meant that the Church cannot go so far as to provide facilities for non-church members if it is to adequately serve the known users. The Church does, however, recognise the need for adjustments to supply to better serve all those existing church members in old and in new locations:

> There is a real danger that the Church, when under strain, may withdraw even further from areas where

> congregations are small and support is poor (e.g. downtown and certain rural areas) and fail to expand in new housing areas, concentrating more and more resources in areas where her life flourishes.
>
> (Report of the Committee of Forty, 1975, p.10).

But all of these goals are hindered by yet another of the Church's goals and that is to safeguard democracy which is the foundation of the Presbyterian Church. This means that the work of adjustment is sometimes obstructed by such problems as awaiting a vacancy, ministerial security of tenure, and most of all by consent. The achievement of mutual consent between all parties in a readjustment situation can be problematical:

> All too often, particularly in the now depopulated area of cities and in certain of the smaller towns, small congregations struggle on, determined to survive as single units so long as they are able to maintain a standard which can only be described as one of 'minimum viability'. In many of them, this creates a situation which is wasteful of the Church's resources in money, manpower and maintenance of buildings, and yet if the Committee is not to completely antagonise the loyal members of such congregations it must have regard for what has been described as the 'religiosity of the people'. It is a real dilemma.
>
> (Reports to the General Assembly, 1968, p.301).

## 7.3 CONCLUSIONS

This review of the adjustments to supply made by several Scottish denominations in the post-War period has demonstrated that such efforts are constrained as much by policy and decision-making processes as by the geography of the changes in known demand. The overall trend in demand has largely determined the nature of adjustment,

that is whether it is in total one of contraction or expansion, but within these limits there has been a great variety of adjustment.

The smallest denominations have a small institutional framework and so face only a very limited problem. Among the larger denominations, the Roman Catholic Church is unique because it has faced a primarily one dimensional problem of expansion of facilities throughout most of the period. Of the remaining larger denominations, none appear to have redistributed their resources, other than to a limited extent, to serve their decreasing, but mobile, membership. The Baptists have maintained their stock of churches because they believe in the conservation of existing facilities and have an active policy of expansion in spite of overall membership trends. The Congregational Union, has, in contrast, experienced closure of several of the existing facilities but has not taken the opportunity to establish new facilities in new locations. The Episcopal Church has not achieved a redistribution of its facilities because of both financial constraints and an apparent lack of co-ordination of effort between different geographical areas. The Church of Scotland does have this co-ordination but while the process of rationalising redundant resources has been successful, conflicting goals, financial problems and procedure have impeded the physical movement of existing facilities to, and the establishment of new facilities in, new locations. Viewed as a whole, though, the adjustments are significant not only for their variety but also because they have important implications for the future geography of institutional religion in Scotland since these decisions will cumulatively influence the patterns of realisation of demand.

As yet only aggregate features of the geography of institutional religion have been considered in this study. Planning in the Church must be based upon knowledge of the congregation since it is ultimately responsible for the ministrations of the Church. Therefore the next stage in this analysis is to examine the geography of the individual congregation.

# CHAPTER VIII

# THE QUESTIONNAIRE SURVEY: METHODOLOGY

CHAPTER VIII

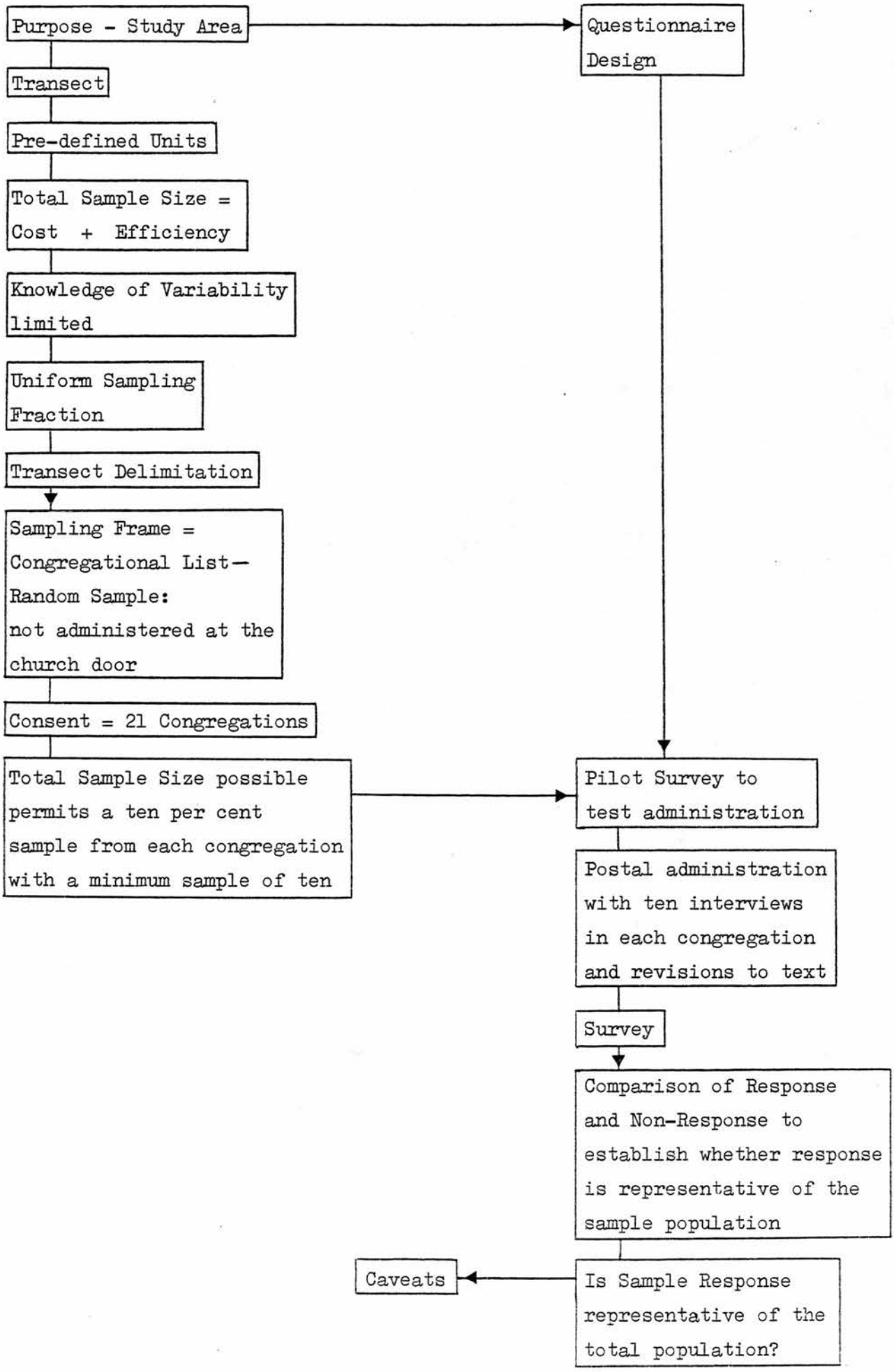
# THE QUESTIONNAIRE SURVEY: METHODOLOGY

In earlier chapters only aggregate relationships have been considered and at this stage it is necessary to complement them by focussing attention on the congregation which is the lowest unit of organisation in the Church. As a prerequisite to understanding the geography of institutional religion at the micro-scale, this chapter is concerned with the design and implementation of a survey. A survey is necessary because the absence of published information relating to the church member requires that such information be collected directly from the church member. Hypotheses about behaviour can then be examined in Chapter IX on the basis of these data. The hypotheses are stated in the next section which discusses the design of a questionnaire. The various stages in the implementation of the questionnaire survey are explained in the sections which follow, and are represented schematically in Figure 8.1.

## 8.1 DESIGN OF THE QUESTIONNAIRE

The questionnaire is constructed in accordance with three guiding principles:

Figure 8.1 - The Process of Implementing the Survey



(i) The content would be determined by the need to gain data in order to examine three a priori hypotheses and to establish certain basic descriptive facts. The hypotheses are as follows:

(a) Distance decay is demonstrated in the congregation and travel-distance can be modelled by a set of independent variables.

(b) The willingness of church members to travel further to church varies systematically and this can also be modelled by a set of independent variables.

(c) There is a systematic relationship between the behaviour of church members and their residential mobility. In addition a wide range of factual information is sought, but specifically interest is focussed upon: the factors which entered into the choice of house location and whether the church was one of these; factors, if any, which prevent more regular attendance at church; and the place from which people had moved, if they had moved since 1965.

(ii) The length of the questionnaire would have to conform to predetermined limits. Although there is an undoubted relationship between length and content there is still an acceptable upper limit to length of two or three sides of text. The reason for setting such a limit is that it was expected that a sizeable proportion of the questionnaires would be addressed to aged persons who could have difficulty in dealing with a longer text. Although this was the principal consideration, it was also felt that there would be a threshold for all age groups after which the response rate would fall, and in fact subsequent interviewing confirmed this early impression.

(iii) A basic emphasis in the design of the questionnaire is careful question wording. A poorly worded question could

potentially lead to far greater error in the survey as a whole, than could close attention to refinements of sampling procedure prevent (Payne, 1951, pp.4-5). Particular attention was given to the final question which deals with the ranking of factors considered in the choice of house location. The exact order of options as given to the respondent for ranking in reply to this question is of possible significance. People have been shown to prefer the extremes of a list of options, and so to test whether this tendency applied in this case the lists were arranged in three varied forms (after Payne, 1951, p.84). The lists were arranged in such a way that they would give exactly equal play to all of the factors, but each option does appear once at an extreme of the list, once at the middle, and once elsewhere. Furthermore, the three lists were so arranged that the sequence was jumbled and no two choices appeared together twice. These three versions of the list were then allocated in equal proportions to a pilot survey which enabled a test for bias through order. For the questionnaire text as a whole the cardinal principles of design are brevity and clarity.

## 8.2 SAMPLING STRATEGY

The strategy that is adopted in a sample survey is clearly the outcome of a complex of decisions. These decisions are based upon interrelated reasoning and within this there is a logical starting point, namely the purpose of the survey. The purpose of this survey is to derive knowledge about the behaviour of members of various Scottish denominations. An ideal solution might be to draw a sample

from all parts of Scotland and to include representative congregations of all denominations. However, to achieve such an ambitious sample would require resources far in excess of those of the present study. In this situation there are two alternatives; either the total feasible sample could be dispersed over Scotland or efforts could be focussed upon a particular area. It is likely that the first of these alternatives would produce unsatisfactory results since sample fractions in any denomination or location would be extremely small. The second alternative was considered to be the better, and so a transect sample was devised. A transect was chosen in order that the sample might cover a variety of contexts rather than concentrate upon a single homogenous area.

Differing forms of transect sampling methodology were considered; the line, the grid-square, and the pre-defined unit. A line proved to be impractical because of the discrete nature of the phenomena being sampled, that is church buildings. The church building was chosen to represent the congregation for purposes of selection because it had a known location, whereas it would have been formidable, even had the information existed, to map out the areal spread of every congregation in the transect area. Grid-squares were also not feasible because the wide range of population densities likely to occur within the transect area meant that grid-squares which took account of population density and were proportional to this would range from the very small to the unmanageable in size. The third option, however, did prove to be feasible as the civil parish and its constituent parts in urban situations (the ward) were found to vary in areal size approximately in inverse proportion to

population density, and were also delimited accurately within known boundaries.

Having settled upon the principle of a transect sample a related consideration was the total sample size. A basic problem was to decide upon the most efficient and most precise size of sample to draw from each of the selected and consenting congregations. The aim was to derive the 'optimum' sample size which also took account of the several strata present within the transect. Moser and Kalton (1971, p.98) state a fundamental rule for sampling several strata:

$$n_i \text{ proportional to } \frac{S_i}{\sqrt{C_i}}$$

where $n_i$ = sample size of ith stratum

$S_i$ = standard deviation of the iths stratum

$C_i$ = Cost per unit in the ith stratum

Cost poses an obvious upper limit upon the whole sample dimension. Not only is there an economic limit but there is also little point in conducting an unecessarily large survey when a smaller sample would suffice. Since the cost per unit is uniform (postage comprises the major method of administration of the sample) over the entire transect, the above formula can become $n_i$ proportional to $S_i$, that is relative variability. Assessment of the relative variability of the strata is itself a problem. Since no suitable studies have already been undertaken on the topic of this questionnaire in the transect area, it would be necessary to conduct a pilot survey in order to establish relative variability before the final survey was designed. However,

such a pilot survey would need to be far more extensive than that which can be envisaged by this study. To establish the variance from this source would require a sample which covered all denominations and all areas to be represented in the transect. Clearly, such an exercise would be too expensive. Furthermore, variance could probably differ over the range of variables included in the questionnaire and so it might prove impossible to 'optimise' the situation by reducing the differential between sample size and variance in any one stratum. In the light of these 'unknowns' the total sample size was divided by a standard sampling fraction between all congregations to be sampled[1]. Any gain in accuracy from establishing the exact variance for different strata would be small relative to the costs and efforts of doing so.

Before the sampling fraction could be chosen two factors had first to be established since the actual number of congregations that would fall into the final sample was a function of these two variables. One factor was the length, direction and continuity of the transect. A second factor was the level of consent in the transect from the clergymen who had control of the congregational lists from which individuals were to be sampled.

A transect was chosen with the intention of covering differing geographical contexts and to render a variety of denominations. The differing contexts that were considered included urban, rural,

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[1] I am grateful to M. Prentice of the Department of Statistics, Edinburgh University, for his advice on this procedure.

Lowland, transitional, and Highland and West Coast divisions for the reason that it was hypothesised that the characteristics of church congregations would vary according to demographic and socio-economic context. Following experimentation the 'best fit' chosen was a transect running from Selkirk in the south east through Edinburgh and Falkirk to the mid-north western coastal area of Ardnamurchan. The specific areas which were chosen from within the transect for sampling purposes were:

Lowland - Urban

City of Edinburgh - three wards representing differing demographic and socio-economic contexts

(i) Leith Central Ward - 11674* people/$Km^2$, 'Downtown'

(ii) St. Giles Ward - 6778 people/$Km^2$, 'City Centre'

(iii) Corstorphine Ward - 1709 people/$Km^2$ 'Suburban'

Large Burgh of Falkirk - two wards representing differing contexts

(i) North Ward - 2089 people/$Km^2$ - 'Industrial working-class'

(ii) West Ward - 1624 people/$Km^2$ - 'Shopping centre and new housing'

Highland and West Coast

Rural - Fortingall Civil Parish - 1.26 people/$Km^2$ - 'Landlocked with mountainous topography and water bodies a hindrance to communication'

---

* The figures of population density are derived from the Census of Scotland, 1971.

Rural/urban - Lismore and Appin Civil Parish - 5.79 people/$Km^2$ - 'Better communications than Fortingall with several relatively large settlements'

Coastal - Ardnamurchan Civil Parish - 1.73 people/$Km^2$ - 'Small settlements and restricted communications'

Transitional

Small burgh/rural - Kilmadock Civil Parish - 18.24 people/$Km^2$ - 'Scattered farms but including the Burgh of Doune'

- Selkirk Civil Parish - 9.08 people/$Km^2$ - 'Scattered farms but including the Burgh of Selkirk'

Figure 8.1 shows these areas within their national context. The qualification for a congregation to be selected for inclusion in the sample was that it should have its church building located within the study areas which comprised the transect. If a denomination had several congregations within the same sampling area the intended principle was to select only one of these congregations for inclusion in the survey since cost would permit no more. In practice, however, this rule did not have to be implemented because consent never led to the granting of permission to sample more than one congregation of each denomination in each area. A random sample without replacement[1] was taken from

---

[1] The same item cannot be selected twice and in fact this was extended such that no more than one person could be chosen from a single household. The result of sampling without replacement is that the remaining items have a slightly increased chance of being chosen, but this is only of significance if the sample is a very large proportion of the population (Dixon and Leach, 1978, p.13).

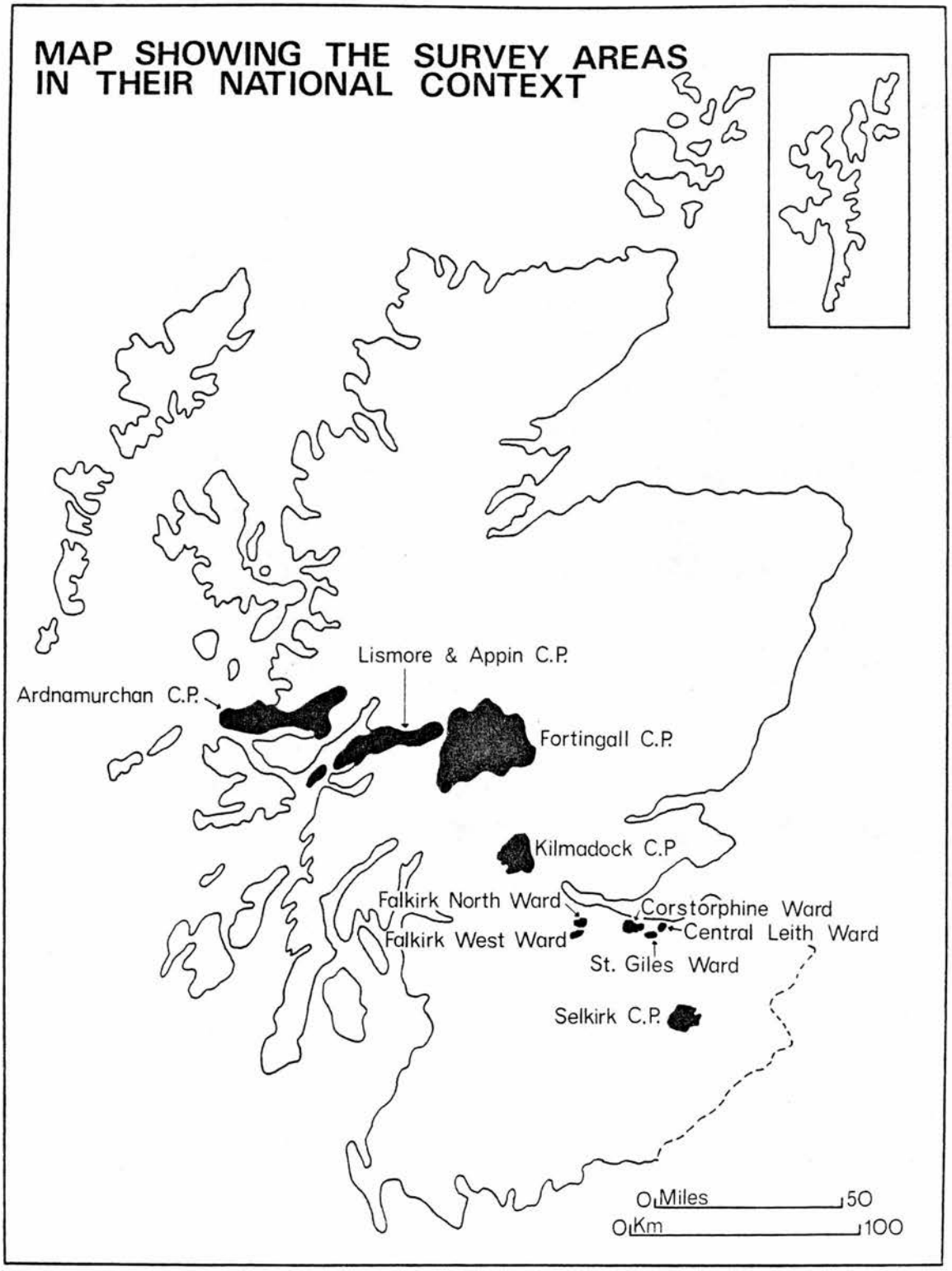

MAP SHOWING THE SURVEY AREAS
IN THEIR NATIONAL CONTEXT
Lismore & Appin C.P.
Ardnamurchan C.P.
Fortingall C.P.
Kilmadock C.P
Falkirk North Ward
Falkirk West Ward
Corstorphine Ward
Central Leith Ward
St. Giles Ward
Selkirk C.P.
0 Miles 50
0 Km 100

Figure 8.2

each of the consenting congregations, but no prior stratification was made to the congregational lists by predetermined criteria such as sex or the distance that a member lives from church. The congregational lists were not stratified by sex for the selection of a sample but a comparison will be made later of the male-female split in the survey response with that of the entire list. A stratification by distance would be problematical because the varying areal and numerical size of different congregations would mean that the stratification factors would themselves have to vary and as such would have very different meaning over the range of congregations. One further problem with such a stratification would be that the allocation of members to the various strata, especially in the large urban congregations, would not only be a lengthy process but also one which has little relevance when the intention is to examine whether relationships apply to groupings of congregations rather than to individual congregations.

Consent entered into the design of the survey since it was necessary to sample from the entire congregation in each case, and this necessitated access to the congregational lists kept by the respective clergymen. The permission to conduct a survey was not always freely granted since several of the clergymen felt that it would be a breach of the trust placed in them by their parishioners if they were to release their names and addresses to a researcher for purposes of approaching them with a questionnaire. It is worth noting that of those who refused to give a list of names for an approach by questionnaire, many would have had no objection to the use of these

lists for mapping purposes. The opposition to a survey was not uniform throughout the same denomination or area with the exception of the Roman Catholic Church. However, this did not prove to be a disadvantage because the method of recording Catholic population produces a sampling frame which is unsuitable for an approach by questionnaire for two reasons:

(i) The list for any one parish represents all baptised Catholics known to the clergy within the territorial area of that parish regardless of whether or not they practise their faith by attending church, and regardless of their age, since children are included. All other denominations within the transect do not include children under 15-17 in their congregational lists and they stipulate that a member must practise his faith in order to be recorded on the list. These differences would mean that the results from a survey based upon the list of known Catholics would not be comparable to those for other denominations in the transect.

(ii) The list for any one parish does not necessarily represent the true congregation affiliated to that parish since it gives no indication of those Catholics living outside the parish who attend at the church of the parish, or of those living within the parish who are recorded on the list of that parish but attend at a church of another parish. This would mean that the results from a survey which was based upon the lists of Catholic congregations would be incomplete and inaccurate in comparison with those from other denominations in the transect.

In this situation only a 'church door' survey would contact persons who attended the church but lived outside the parish. It later proved possible to conduct a small supplementary survey of three Catholic churches in the centre of Edinburgh by contacting Catholics as they left the church on a Sunday.

The reason for not adopting the 'church door' approach more generally was that the purpose of the survey is to test the behaviour of a representative sample of all members of a congregation rather then just those who attend the church of that congregation on any (or several) specific Sunday(s). It was also suspected that the 'church door' approach would bias the resultant sample toward the keener church member whereas physical planning has to be made for the entire church congregation. A later test gave some evidence in support of the wisdom of this earlier caveat. A parish in the St. Giles Ward in Edinburgh, namely St. Cuthberts Church of Scotland, was successively sampled by the two different methods of a questionnaire given firstly to a random sample of members drawn from the congregational list (communion roll), and secondly to a sample of members contacted at the church door[1]. The comparison of the two sets of responses, using chi-squared testing, gave the following results:

TABLE 8.1 A COMPARISON OF CHURCH DOOR AND COMMUNION ROLL SAMPLES FOR ST. CUTHBERTS CHURCH, EDINBURGH.

| Variable | Conclusion | Significance level |
|---|---|---|
| Length of membership of the congregation | Significant difference | 0.05 |
| Number of times that member attends church | Significant difference | 0.001 |
| Length of time since last attendance | Significant difference | 0.001 |

[1] The author is grateful to Professor J.N. Wolfe of the Department of Economics, Edinburgh University, for access to raw data collected for the Church of Scotland Economic Survey (1977).

Each of the variables included in the table is a possible indicator of the degree of commitment to church membership. The two samples were first checked for compatibility in terms of age and sex structure in order that demographic variation would not lead to a spurious conclusion about commitment. The results of testing for the above variables could then be taken to confirm that the differences in commitment which could be observed from the raw data were statistically significant. Those members who were contacted at the church door had belonged to their congregation for a greater period of time, and had attended church more regularly and recently than members drawn from the communion roll.

The outcome after consent was that permission was granted to sample 21 congregations representing all of the ten areas within the transect but, especially because of the Roman Catholic Church's omission, not all of the denominations in each area. Since there was no systematic bias in the giving of consent, this selection of denominations and congregations was appropriate for the purposes of the survey. The main reason for refusal was clearly the concern for confidentiality of the list, but in a few cases it was also suspected that consent was not granted because the congregational list which the clergyman possessed was out of data. In no case was it believed that the refusal to grant consent for a survey was related to any particular feature of the congregation that was to be studied by the questionnaire. Therefore no bias was expected to arise from this process of self-selection.

Given these twenty-one congregations, the total feasible size of sample, and the need to apply a constant sampling fraction, it

was found that the sizes of the individual congregations would permit a constant sampling fraction of ten per cent. A cut-off value, at which any congregations with fewer members than one hundred would automatically have ten of their members sampled, was imposed. This cut-off value was designed to ensure that a fair sample was taken in a very small congregation, and any over representation that this caused could be accounted for by a weighting factor at the analysis stage.

## 8.3 THE PILOT SURVEY

The pilot survey had an important part to play in devising the basic survey methodology. The pilot survey was conducted during February 1976 and had the following aims:

(i) To test the wording and the quantity of questions in the questionnaire text. Various ordering in the final question, which concerned the ranking of alternatives considered during house location, was also tested.

(ii) To test a variety of methods of administration.

(iii) To establish the likely response rate to the survey, and to test different aids for increasing this response.

The pilot survey comprised four congregations from each of which a ten per cent random sample was taken. These congregations were chosen to represent different denominations in both urban and rural contexts. The four which were selected, and gave their consent, lie outside, but in close proximity to, the main survey areas. A pilot survey was carried out in each of the following:

(1) St. Andrews Church of Scotland, close to Central Leith Ward, Edinburgh, sample size 84

(2) Kilmallie Free Church, near to the Lismore and Appin section of the transect, sample size 30

(3) Sighthill Church of Christ, south of the Corstorphine Ward, Edinburgh, sample size 15

(4) Balerno Church of Scotland, to the south west of Edinburgh, sample size 67.

Numbers (1) and (2) were issued by post and a stamped and addressed return envelope was included. The remaining numbers, (3) and (4), were delivered by the respective clergymen who also undertook to return the completed questionnaires to the author. The response rates, as a percentage, were as follows:

(1) 86.75 after two weeks in total

(2) 70.00 after a follow-up and three weeks and one day in total

(3) 53.33 after five weeks in total (from delivery to the clergyman to receipt by the author)

(4) 22.39 after six weeks in total (from delivery to the clergyman to receipt by the author).

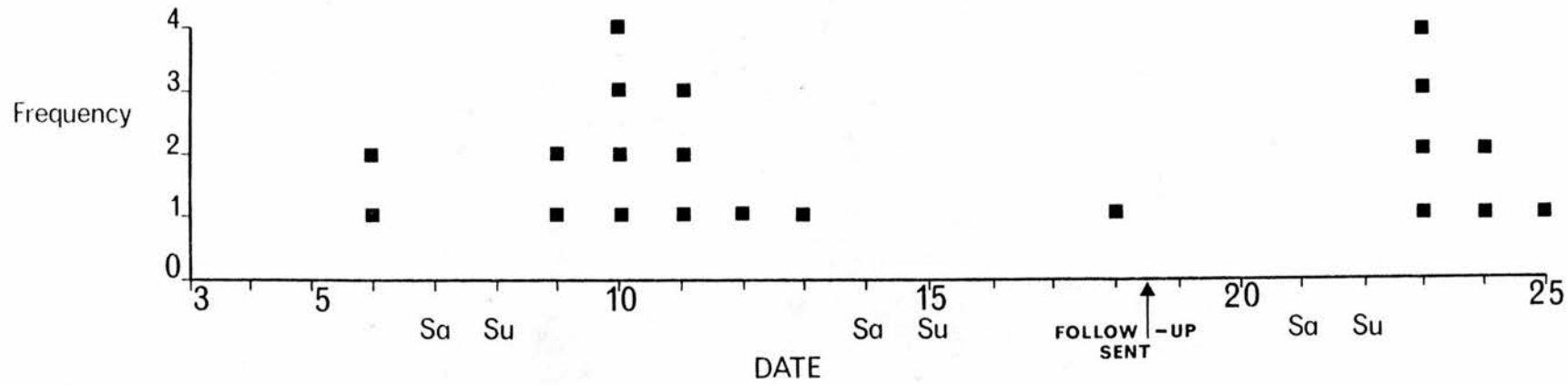
On the basis of these response rates it was envisaged that certain problems might be implicit in such a survey. These problems included the differential rate of response from rural and urban areas, and the delayed level of response incurred in the 'hand delivery' method of survey. There is one criterion which is considered to be of the utmost importance in dealing with problems associated with response, and that is to maximise total response. Previous experience (Fuller, 1974, p.245) has demonstrated that the first, and probably most important, step toward the minimisation of bias in treating

response as representative of the total sample should be to maximise that response.

There are several factors which have been found to influence the level of response to a survey. Some of these are summarised for postal surveys by Morgan (1974, p.309) and there are several in addition to the factors of questionnaire length, wording and content which have already been discussed in this chapter. A postal technique is favoured more than a 'hand delivery' method since the former has the added advantage of speeding up the rate of return. The inclusion of a stamped and addressed envelope as well as an introductory letter from the author is also essential to any efforts to achieve a high response level. The introductory letter was designed to indicate the purpose and relevance of the study, and to assure the subject as to the reason for his selection and the confidentiality of his response. The use of a further introductory letter, on this occasion written and signed by a congregational official, was tested in (1) but this proved to achieve no significant gain in response; 38 responded who had received a letter of this kind, while 34 responded who had received no such letter. It appears that the inclusion of an additional letter of this kind was unecessary. However, a follow-up letter had been found to increase the total response as can be seen from Figure 8.3. This histogram shows that the initial response from Kilmallie Free Church was 47 per cent, but that an additional 23 per cent replied after receiving a reminder letter. It was therefore decided to incorporate a reminder letter in the main survey but not, on this occasion, to incur the additional expense of including another return envelope and questionnaire. As in the pilot survey, the reminder letter would be

Figure 8.3

RESPONSE RATE FROM A PILOT SURVEY[1] OF KILMALLIE FREE CHURCH, CORPACH, FORT WILLIAM, RELEASED BY SECOND CLASS POST 3·2·76




KEY

Sa Saturday
Su Sunday
1 Sample size of 30

sent to non-respondents at such time as the response to the initial mailing diminshed noticeably. A copy of the reminder letter is included in the Appendices.

An additional method of administration, which it was unnecessary to test in the pilot survey, was the interview. The interview was seen as a check upon response error, a means of gleaning additional data which were not available from the postal questionnaire, and a means of gaining first-hand knowledge of the areas in which the congregations were situated. In order that information gained from the interview would be comparable to that gained from the postal questionnaire, it was decided to use a structured interview with the same basic text as the postal questionnaire. Since each member could be approached in person, and since recalls were possible, there would be little or no non-response from the interview portion of the survey. Time and cost constraints made it possible to take only a uniform number of ten interviews within each congregation; for some this would mean that the entire survey would be conducted by interview while for other, larger, congregations this would mean that only a small proportion of the total sample drawn from them would be by interview.

A final consideration in ensuring the highest response was to design the postal questionnaire to be used in the main survey in such a way that it appeared attractive. The questions were clearly laid out and spaced over three sides of A4 dimension. These were then combined with the introductory letter into a folded A3 sheet printed on all sides. A copy of the questionnaire text is included in the Appendices.

Having taken the known measures to increase response and therefore to make some contribution to reducing likely non-response bias, and to achieving a satisfactory number of replies for subsequent analysis, attention must be given to the nature of non-response. Whenever non-response occurs it must be examined to establish whether or not its characteristics differ from the response (Stimson and Ampt, 1972, pp.51-4). Only then can confidence in response be assessed. There are several means for checking the nature of non-response, but the method chosen for this study was to select two congregations at the extremes of response rate and to undertake a comparison of respondents and non-respondents in these two. A sample of non-response was then undertaken by choosing twenty individuals at random from each set of non-respondents. The mode of this sample was the personal interview so as to ensure the greatest possible co-operation. In order that the results from these comparisons could be generalised with some certainty for the whole of the transect, one of the congregations would be taken from an urban area and the other from a rural area. Provided that non-response was not significantly different to response, it would then be possible to individually weight the response from each congregation so that it would represent the full number of replies originally expected from the sample.

Since the problems and their solutions that may arise from the levels of response to the principal survey have been considered, attention can be turned to another facet of questionnaire methodology that arose during the pilot survey and subsequent design stages. This facet concerns the wording of the questionnaire text. Many minor modifications were made to the wording of questions, especially where

it was felt from the pilot survey responses that the respondent had not fully understood the question in the form in which it was originally stated. Attention was focussed also upon the replies to the final question, which dealt with factors that were considered in house location. A chi-squared test was executed for these responses to test for a significant difference between the ranked positions accorded by the respondents to the 'proximity of church' option for the three different versions of the list of factors. The result was that the null hypothesis of no significant difference could not be rejected ($x^2 = 0.252$, degrees of freedom = 2, significance level = 0.001), and it was concluded that there was no significant difference between the positions accorded to the proximity of the church by respondents answering to the three differing orders of options. As a result, one standard list of factors, ordered in a random manner, was used in the final version of the questionnaire.

## 8.4 THE PRINCIPAL SURVEY

The interview portion of the survey was conducted at dates between July and October, 1977. In every congregation, with one exception, it was possible to interview the ten persons who had been selected at random. Even in the one exception in which a full response was not achieved, nine persons were successfully contacted. The interview portion of the survey gave both a full response to the standard questionnaire and highlighted certain caveats for the interpretation of its replies. Interestingly, the author was not aware of response error to any of the questions; the impression that was generally conveyed was one of willingness and frankness in responses.

For the postal portion of the survey, a one hundred per cent response rate was the exception rather than the rule. Even so the response rate after a reminder letter only fell below 50 per cent in one case, and the overall average response rate (obviously excluding those congregations with membership less than the cut-off value of 100 and which were therefore sampled by interview alone) was 72 per cent. The level of response to the final survey is given, by congregation in Table 8.2.

## 8.5 A COMPARISON OF RESPONSE AND NON-RESPONSE TO THE PRINCIPAL SURVEY

The non-response which was incurred in the major survey is considered to be true non-response, that is deliberate or accidental non-response after receipt of the questionnaire. The foundation for this statement is that the congregational lists were found to be largely up-to-date as the number of substitutions which it was necessary to make because members had moved on since the last up-dating of the congregational lists was small, forming seven per cent of the total number of questionnaires that were sent.

The two congregations which were chosen for a comparison of response and non-response were:

(i) St. Marys West Church of Scotland, Scotland, a small burgh/rural congregation with a 70 per cent response rate

(ii) Bainsford Church of Scotland, Falkirk, an urban congregation with a 54 per cent response rate.

Table 8.2 - Response to the Postal Questionnaire Survey

| Congregation | Number of Questionnaires Sent | Number Received | Response Rate as a Percentage |
|---|---|---|---|
| St. Marys West* Selkirk | 86 | 60 | 70 |
| St. Johns+ Selkirk | 9 | 7 | 78 |
| South Leith* | 216 | 165 | 76 |
| Leith Methodist | 11 | 9 | 82 |
| Carrick Knowe* Corstorphine | 128 | 96 | 75 |
| Corstorphine United Free | 3 | 1 | 33 |
| St. Columbas Free (St. Giles Ward) | 20 | 17 | 85 |
| Highland Tolbooth* St. Johns (St. Giles Ward) | 25 | 17 | 68 |
| Old St. Pauls+ (St. Giles Ward) | 36 | 28 | 78 |
| Augustine Bristo Congregational (St. Giles Ward) | 12 | 11 | 92 |
| St. Marks Unitarian (St. Giles Ward) | 3 | 3 | 100 |
| Falkirk Old* | 93 | 63 | 68 |
| Falkirk Bainsford* | 68 | 37 | 54 |
| Kilmadock Parish Church* Doune | 45 | 31 | 69 |
| Kinloch Rannoch* | 3 | 3 | 100 |
| Total | 758 | 548 | 72 |

Each of the above congregations also had ten interviews, but the following congregations have fewer than 100 members and so had ten interview, but no postal, questionnaires.

| | | | |
|---|---|---|---|
| Duror* | - 71 members | Strontian* | - 48 members |
| Glencoe+ | - 63 members | Kilchoan Free | - 40 members |
| Falkirk United Free | - 21 members | Seventh Day Adventist (St. Giles Ward) | - 49 members |

* Church of Scotland + Episcopal Church of Scotland

The results from statistical testing of the differences between response and non-response in these two congregations are presented in Table 8.3. On the whole, there are no significant differences[1] between respondents and non-respondents in either of the congregations (Table 8.3a). Similarly, there are no sizeable differences between the response and non-response strata in terms of the proportion of non-attenders (Table 8.3b) who are still retained, usually for legitimate reasons of old age or ill health, on the congregational lists. Non-response was not exceptionally attributable to non-attendance. Consequently, it is permissible to treat the response (interview and postal), throughout the transect, as being representative of the entire sample as initially selected for the survey. Therefore the responses of each congregation can be weighted up to represent, for the purposes of joint analysis, the full quantity which would have come from a complete response to the original sample.

## 8.6 THE REPRESENTATIVENESS OF THE SAMPLE

Having considered how representative the response was of the sample, a further consideration in the representativeness of the sample with respect to the total population. The representativeness of the sample is influenced both by the initial random sampling procedure as well as by non-response. Some evidence has already been quoted to show that the effect of non-response is one of chance variation only.

---

[1] The only significant difference to occur was in Bainsford. This may largely reflect the stringency of the chi-squared test as compared to the Fisher test, and it must also be noted that this difference was also only barely significant at the 0.05 level.

Table 8.3 - A Comparison of Response with Non-Response for a Set of Variables in Two Congregations from the Transect[1]

(a)

| Variable | +Result for Falkirk Bainsford Church | *Result for St. Marys West Church |
|---|---|---|
| Moved house since 1965 | No significant difference ‡ (NSD) but a different order | NSD |
| Socio-economic group | NSD | NSD but a different order |
| Length of church membership | NSD | NSD |
| Age | NSD | NSD |
| Distance prepared to travel further to church | NSD | NSD |
| Car ownership | NSD | NSD |
| Transport mode to church | NSD | NSD |
| Frequency of attendance | Significant difference ‡ (p = 0.05) | NSD |
| Sex | NSD | NSD |
| Distance travelled to church | NSD | NSD but a different order |

* The Fisher Exact Test was used (because of low expected frequencies), with a significance level of 0.05 or less. It was used as a one-tailed test.

\+ The Chi-Squared Test (corrected for continuity) was used with a significance level of 0.05 or less.

‡ One-tailed test, with remainder two-tailed.

1 - Using both postal and interview results.

(b)

| Congregation | Proportion not attending church in each strata | |
|---|---|---|
| | Non-Response | Response |
| Falkirk Bainsford | Total sampled = 20<br>5 should not be on list<br>1 non-attender from 15<br>Proportion = 0.05 | Total response = 47<br>3 non-attenders from 47<br>Proportion = 0.06 |
| St. Marys West Selkirk | Total samples = 20<br>4 should not be on list<br>7 non-attenders from 16<br>Proportion = 0.44 | Total response = 70<br>25 non-attenders from 70<br>Proportion = 0.36 |

By contrast, the initial decision to take a random sample had obvious implications for the outcome of the survey, in that although such a sample has many advantages, not least in giving every member an equal chance of selection, it could, on occasion, produce a sample which was random but unrepresentative. The only means of avoiding such a chance occurrence would be to stratify, in advance, the population from which the sample was to be taken by certain factors which ought to be correctly represented in the sample. However, there are many factors which could have been of importance, such that to stratify each congregation even by, for example, sex and distance from church would have involved a complex procedure. So the representativeness of the sample was basically entrusted to random sampling.

A check upon the outcome of the sample, following random sampling and non-response, was carried out by means of a comparison of the proportion of males to females in the complete lists of each of the congregations and in the subsequent response from them. The details of this examination are given in Table 8.4. Variation between the congregational and the sample proportions is apparent, especially in the percentage figures. A rank correlation coefficient of the relationship between these percentage figures shows that the relationship is positive and moderate ($r = + 0.5$, significant at the 0.05 level). The exact size of this coefficient is not of direct interest, since it reflects both the use of ranks and percentages as the basis for calculation as well as the relationship between the two sets of proportions. It is of more importance that the differences between the sample proportions and those of the whole congregations are

Table 8.4 - Males and Females in the Survey Congregations and the Sample Response[1]

| Congregation | Congregation List | | | Questionnaire Response | | | Non-Response | | |
|---|---|---|---|---|---|---|---|---|---|
| | Males | | Females | Males | | Females | Males | | Females |
| | abs.[2] | %[3] | abs. | abs. | % | abs. | abs. | % | abs. |
| St. Marys West Selkirk | 372 | 39 | 588 | 38 | 40 | 42 | 8 | 40 | 12 |
| St. Johns Selkirk | 67 | 35 | 126 | 10 | 59 | 7 | | | |
| South Leith | 610 | 27 | 1645 | 39 | 22 | 136 | | | |
| Leith Methodist | 62 | 30 | 145 | 4 | 21 | 15 | | | |
| Carrick Knowe Corstorphine | 503 | 37 | 874 | 36 | 34 | 70 | | | |
| Corstorphine United Free | 46 | 35 | 85 | 2 | 18 | 9 | | | |
| St. Columba Free (St. Giles Ward) | 105 | 35 | 192 | 11 | 41 | 16 | | | |
| Highland Tolbooth St. Johns (St. Giles Ward) | 120 | 35 | 225 | 6 | 22 | 21 | | | |
| Old St. Pauls (St. Giles Ward) | 149 | 33 | 309 | 14 | 37 | 24 | | | |
| Augustine Bristo (St. Giles Ward) | 64 | 30 | 151 | 7 | 33 | 14 | | | |
| Unitarian (St. Giles Ward) | 45 | 34 | 88 | 1 | 8 | 12 | | | |
| Falkirk Old | 359 | 35 | 668 | 28 | 38 | 45 | | | |
| Falkirk Bainsford | 226 | 29 | 552 | 14 | 30 | 33 | 6 | 30 | 14 |
| Doune | 218 | 40 | 330 | 10 | 24 | 31 | | | |
| Kinloch Rannoch | 58 | 45 | 72 | 5 | 39 | 8 | | | |
| Glencoe | 25 | 40 | 38 | 4 | 40 | 6 | | | |
| Strontian | 19 | 40 | 29 | 3 | 30 | 7 | | | |
| Kilchoan | 19 | 48 | 21 | 5 | 50 | 5 | | | |
| Seventh Day Adventist | 14 | 28 | 36 | 2 | 20 | 8 | | | |
| Falkirk United Free | 6 | 29 | 15 | 3 | 33 | 6 | | | |

1. - With the exception of Duror because its congregational list was unsuitable for this type of analysis.

2. - Absolute figures

3. - These figures expressed as a percentage of the total of males and females.

generally not substantial, as shown by the positive and moderate coefficient. The only major numerical deviations from reality occur in the congregations of St. Johns Episcopal Church in Selkirk and St. Marks Unitarian Church in Edinburgh. In these cases it was the initial sampling procedure which accounted for the deviations, since non-response in each of these congregations is negligible (St. Johns = 2 out of 19, St. Marks = 0). In such circumstances it would have been tempting to re-sample these congregations at the stage prior to issuing the principal questionnaire. However, Moser and Kalton (1971, p.84) do not recommend this course of action:

> To reject the sample is clearly unsound because it introduces an element of judgement into the selection, and because it deprives this sample of its due probability of being selected.

In this situation any bias has to be accepted. The degree of this bias depends upon its size, its significance to the hypotheses being tested, and its importance relative to other variables which may themselves be biased to differing extents. There are two implications for the interpretation of the results of this survey and these are; that a test on the representativeness of the sample based on only one variable must be seen as only a partial indicator; and that the test in itself suggests that any conclusions drawn from the study in the next chapter must be treated with, at the very least, the caution usually attached to a sample.

Having described the survey, justified the decisions which were taken during its design, and pointed to certain caveats, the next chapter will proceed to analyse the results from the survey with an appreciation of its strengths and weaknesses.

# CHAPTER IX

# THE QUESTIONNAIRE SURVEY: RESULTS

# CHAPTER IX

# THE QUESTIONNAIRE SURVEY: RESULTS

In order to understand the behaviour of church members at the micro-scale three hypotheses have been formulated. These hypotheses relate to:

(i) travel-distance

(ii) willingness to adjust behaviour

(iii) the effect of residential mobility.

This chapter reports on the testing of the three hypotheses using the data gained from the questionnaire survey.

The first three sections of the chapter investigate topics that can assist these analyses. The first section examines the total mapped distribution of each congregation because it is believed that mapping can assist the subsequent analyses in two ways. First, mapping of the entire congregational list provides a background knowledge which will assist the interpretation of the results based upon a sample of the population. Second, a pertinent typology can be formed on the basis of the mapped distribution of the whole congregation since such distributions represent the spatial expression of behaviour which the questionnaire seeks to examine in detail. The typology will suggest

possible sub-divisions of the universe of survey congregations and so provide a framework for the analysis of results of the survey.

In the second section, the opportunity is taken to establish whether the behaviour of Catholics, who were omitted from the principal survey, conforms on the basis of a small urban survey to the behaviour of other church members. In order that the analyses of the three hypotheses may be better understood they are preceeded, in the third section, by a discussion of the statistical methodology involved. The fourth and subsequent sections relate the results of analyses of the survey data and are concluded with an assessment of the implications of the behaviour of church members.

## 9.1 THE MAPPED DISTRIBUTIONS OF CHURCH MEMBERS BY CONGREGATION

A basic theme in the design of the survey was that the sampling transect would be chosen to represent a variety of geographical contexts. Therefore the congregations which form the basis of this study might be expected to have differing characteristics. What is of interest is the nature of this variation.

Within the survey transect there are eight rural congregations. In each case the church building is located in a settlement often because the two are causally related. This leads to a question of what is a truly rural congregation. For the purposes of this study a congregation is rural if it is based upon

a small settlement but also gathers members from a wide rural hinterland. Selkirk, as a small burgh in the Registrar-General's classification, is the largest settlement contained in the transect, but even here both of the sample congregations, especially St. Johns Episcopal church, serve a wide rural area in addition to the settlement. The remaining rural congregations are based upon much smaller settlements, from which the majority of their members are drawn, as well as a rural hinterland.

Mapping shows that members are drawn almost entirely from within the parish boundaries of each rural congregation with the exception of St. Marys West Church of Scotland. St. Marys West draws many members from outside its parish because it shares responsibility for the settlement with two other churches of the same denomination. Consequently the urban area is divided into three parishes. An example of the rural congregation, that of Kilmadock parish church, is shown in Figure 9.1. There are additional members, not included on the map, who are drawn from outside the parish boundary but these account for only four per cent of the total membership of the congregation.

There are 13 urban congregations in the survey and these show a variety of form. These congregations are taken from the large burgh of Falkirk and the City of Edinburgh. On a first examination of the mapped distributions of the members of urban congregations, the most obvious classification is into compact and dispersed forms. A compact congregation is defined as being drawn predominantly from

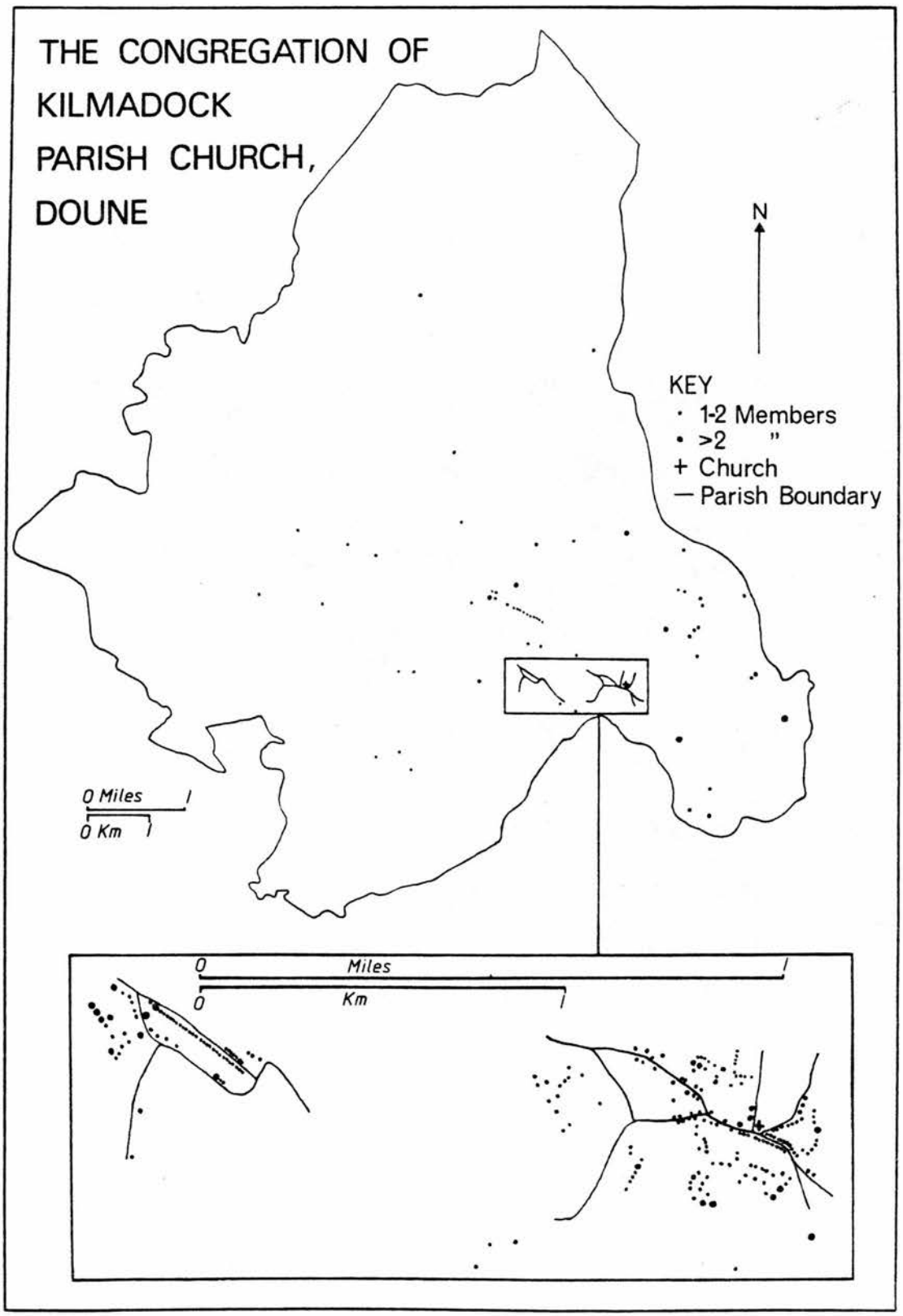

THE CONGREGATION OF
KILMADOCK
PARISH CHURCH,
DOUNE
N
KEY
· 1-2 Members
• >2 "
+ Church
— Parish Boundary
0 Miles
0 Km
0 Miles
0 Km

Figure 9.1

within a close radius of the church building and conveys the impression of serving a 'community'. The dispersed congregation is drawn from many parts of the city, or burgh, with few members living in close proximity to the church building and so this type of congregation is henceforth referred to as 'gathered'.

We might expect some gathered congregations to occur when there are no competing facilities of the same denomination within the urban area. By the same token we might expect some community congregations to occur for those denominations which have several facilities within the urban area and a division of territory into parishes. This is true of Bainsford Church of Scotland, shown in Figure 9.2, and of Carrick Knowe Church of Scotland, shown in Figure 9.3, and also of South Leith Church of Scotland. It is apparent, however, that a parish system is no guarantee that a congregation will adopt a community form. Falkirk Old Church of Scotland, shown in Figure 9.4, gathers its membership from throughout the burgh and from areas outside the burgh rather than from within its own parish. Eight per cent of the membership of this congregation is drawn from areas outside the burgh which are not shown in Figure 9.4. Old St. Pauls, Episcopal Church of Scotland, shown in Figure 9.5, draws only a few members from within its parish while the majority come from elsewhere in the city. The same description can be applied to Highland Tolbooth St. Johns Church of Scotland.

Not surprisingly, the lack of a parish system is often no disincentive to community form. On the one hand, Augustine Bristo Congregational Church has no parish and, as shown by Figure 9.6, draws

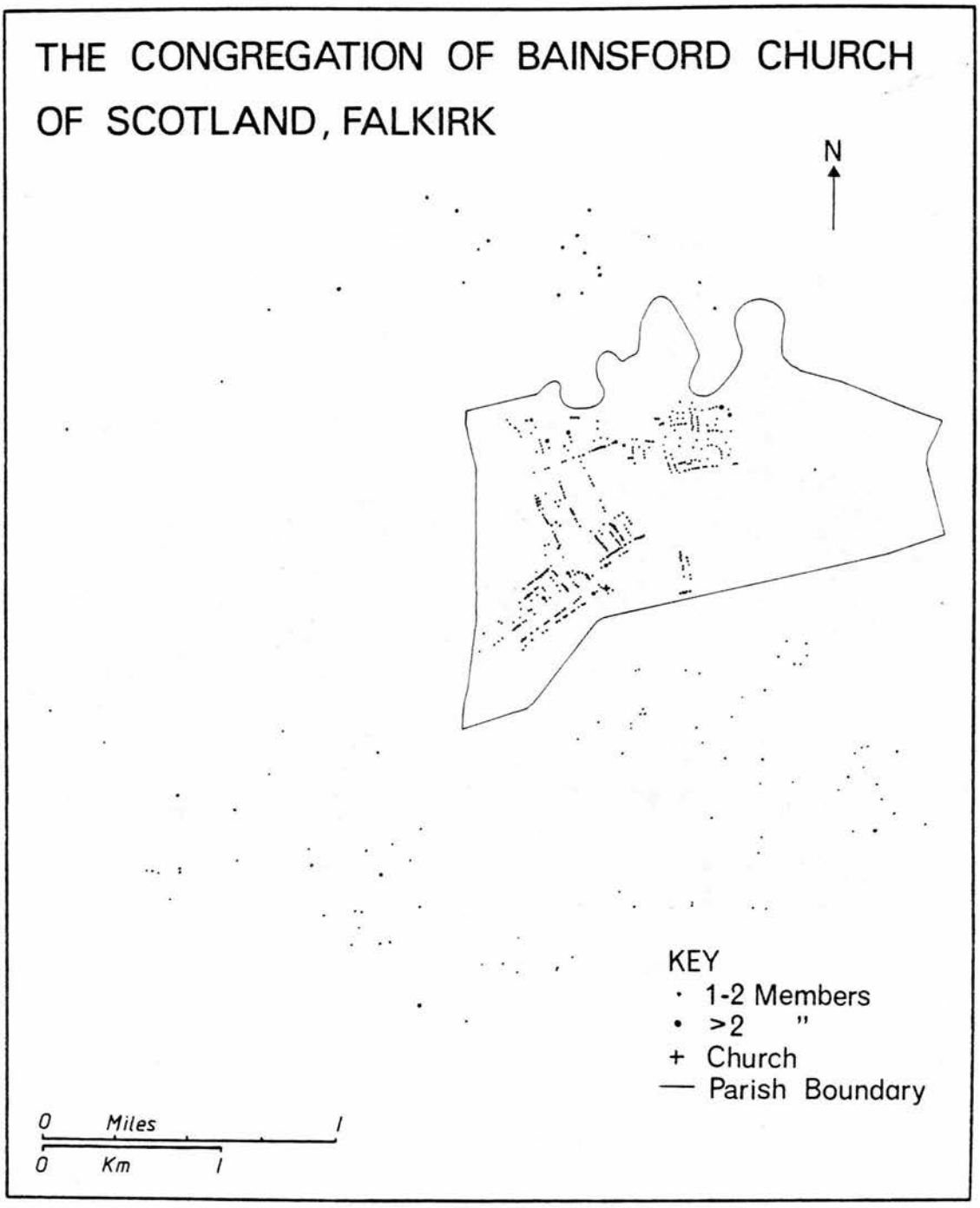

THE CONGREGATION OF BAINSFORD CHURCH OF SCOTLAND, FALKIRK
N
KEY
· 1-2 Members
• >2 "
+ Church
— Parish Boundary
0 Miles 1
0 Km 1

Figure 9.2

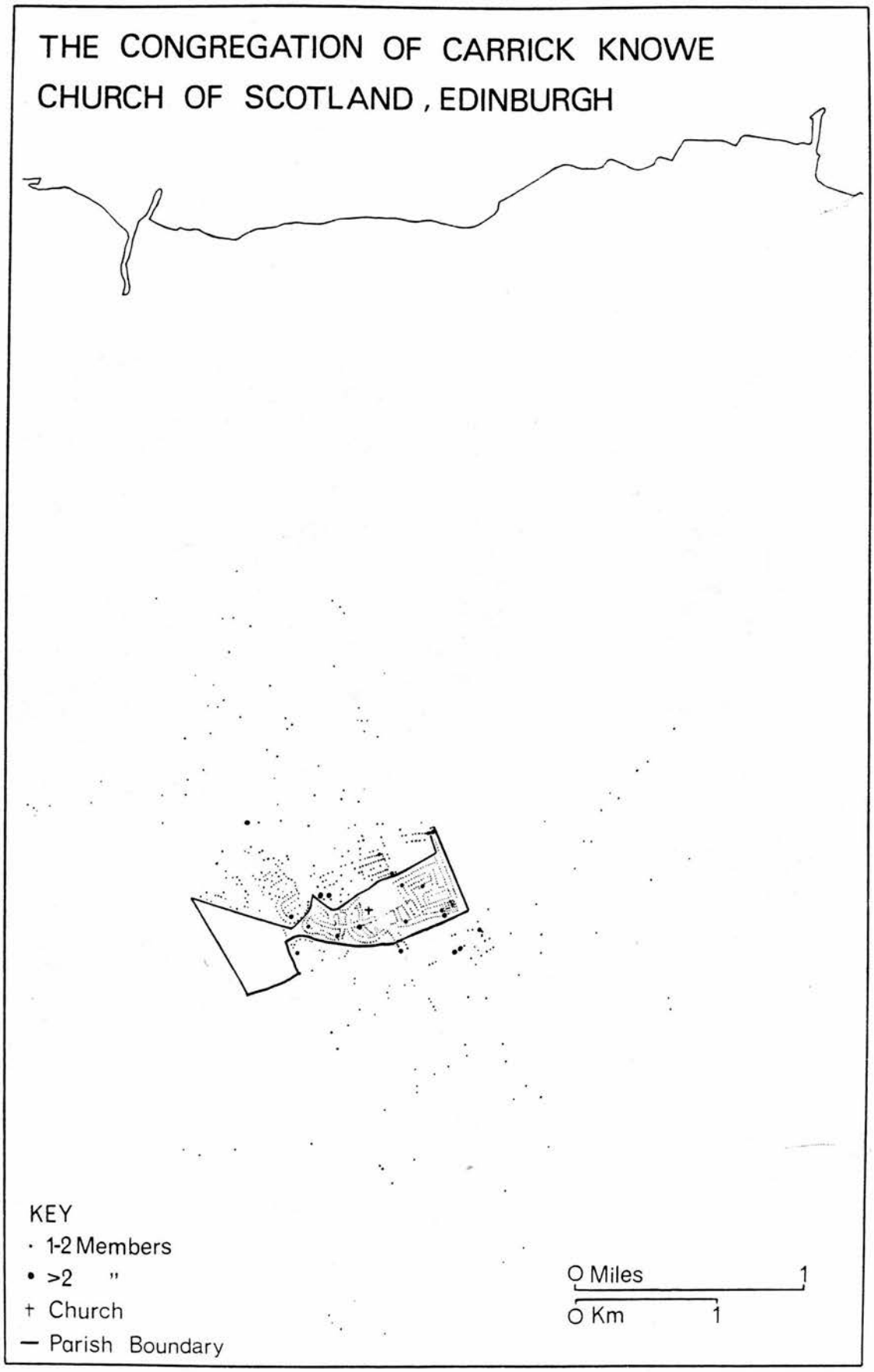

THE CONGREGATION OF CARRICK KNOWE
CHURCH OF SCOTLAND, EDINBURGH
KEY
· 1-2 Members
• >2 "
+ Church
— Parish Boundary
0 Miles 1
0 Km 1

Figure 9.3

Figure 9.4

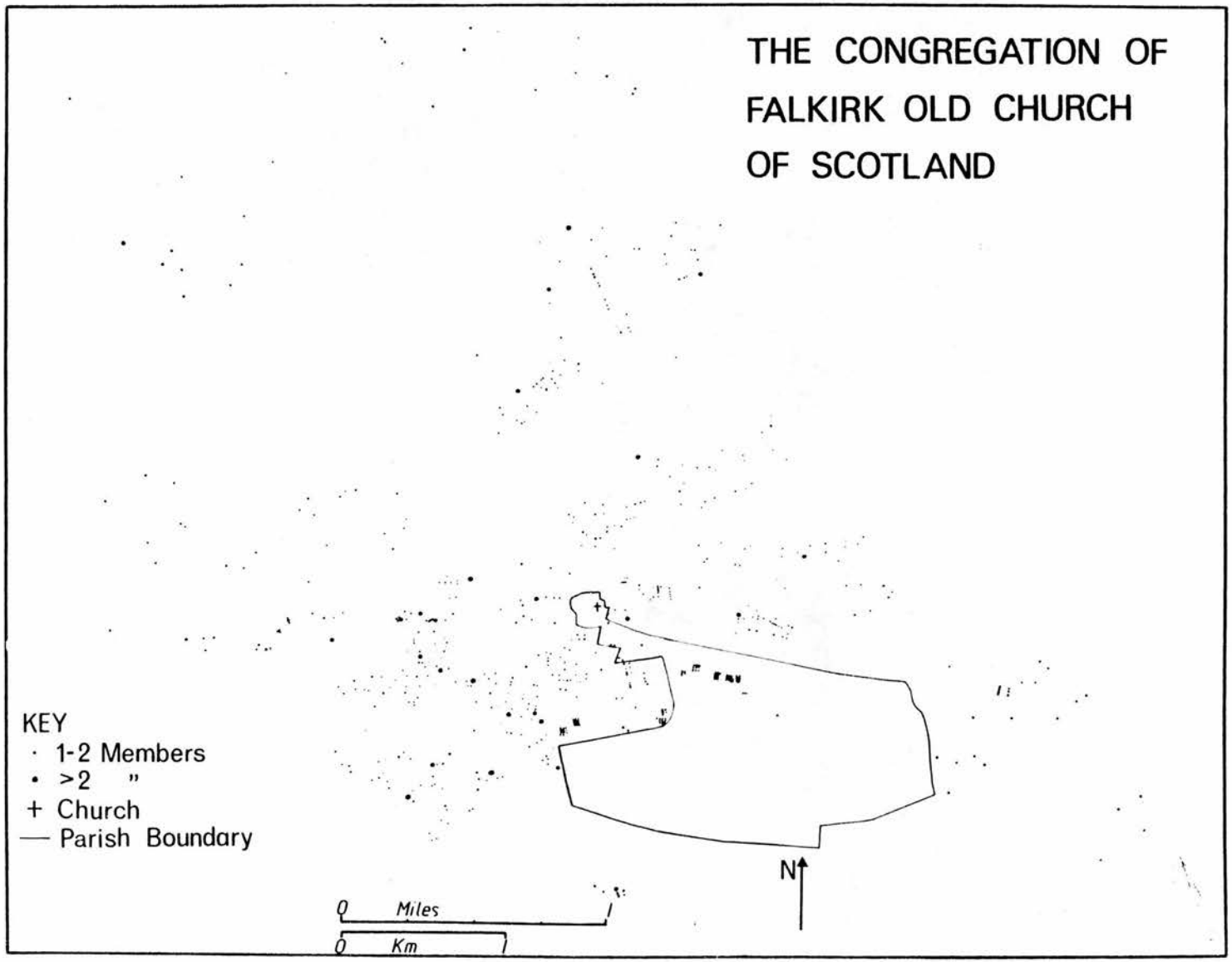

THE CONGREGATION OF
FALKIRK OLD CHURCH
OF SCOTLAND
KEY
· 1-2 Members
• >2 "
+ Church
— Parish Boundary
N
0 Miles
0 Km

Figure 9.5

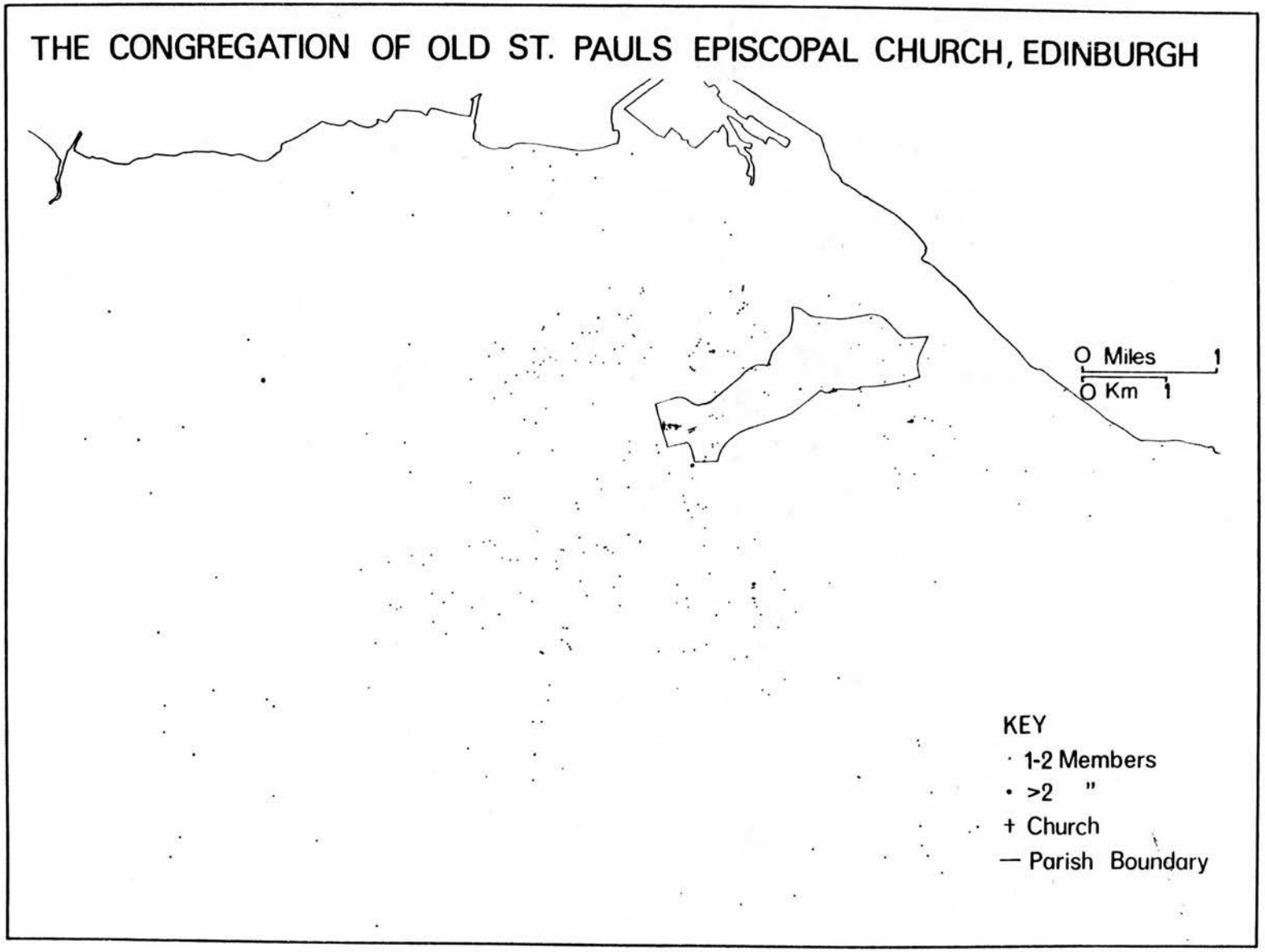
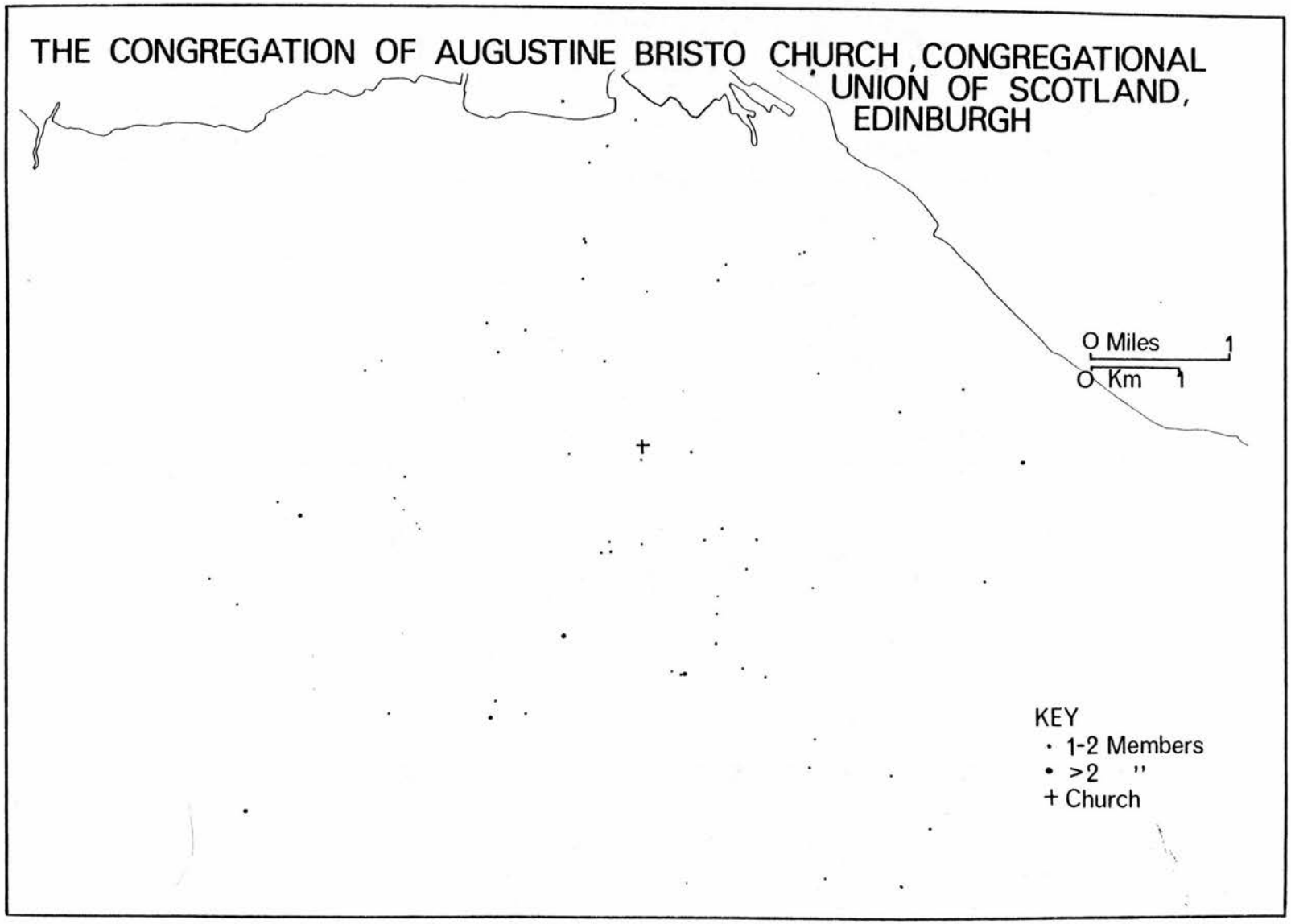

THE CONGREGATION OF OLD ST. PAULS EPISCOPAL CHURCH, EDINBURGH
O Miles 1
O Km 1
KEY
· 1-2 Members
• >2 "
+ Church
— Parish Boundary

Figure 9.6


THE CONGREGATION OF AUGUSTINE BRISTO CHURCH, CONGREGATIONAL UNION OF SCOTLAND, EDINBURGH
O Miles 1
O Km 1
KEY
· 1-2 Members
• >2 ''
+ Church

members from the city as a whole even though there are seven facilities of the same denomination within the city. On the other hand, Leith Methodist church, which also has no parish and is shown in Figure 9.7, draws its membership mainly from within Leith and similarly Corstorphine United Free church, which has no parish, is a tightly-knit community congregation.

Viewing the urban congreations as a whole, the common principle appears to be that regardless of whether there is a formal parish system the city centre congregations are 'gathered' while the outlying[1] congregations have a community form. Since the members of these two different types of congregation are drawn from several, even over-lapping, areas within the city or burgh, it appears that choice is an important factor in creating these patterns. But, while not denying the significance of an individual's motivation or decision-making process in choosing a particular church, it is of more interest for this study, at this stage, to take choice as given and then to derive models of group behaviour for the two forms of urban congregation. In this way an indication may be given of the characteristics which differentiate members with opposing types of spatial behaviour.

The final allocation of the survey congregations which has been derived from a review of mapped distributions is presented in Table 9.1. The typology suggests a framework for the examination of the three hypotheses. One approach is to compare behaviour in urban

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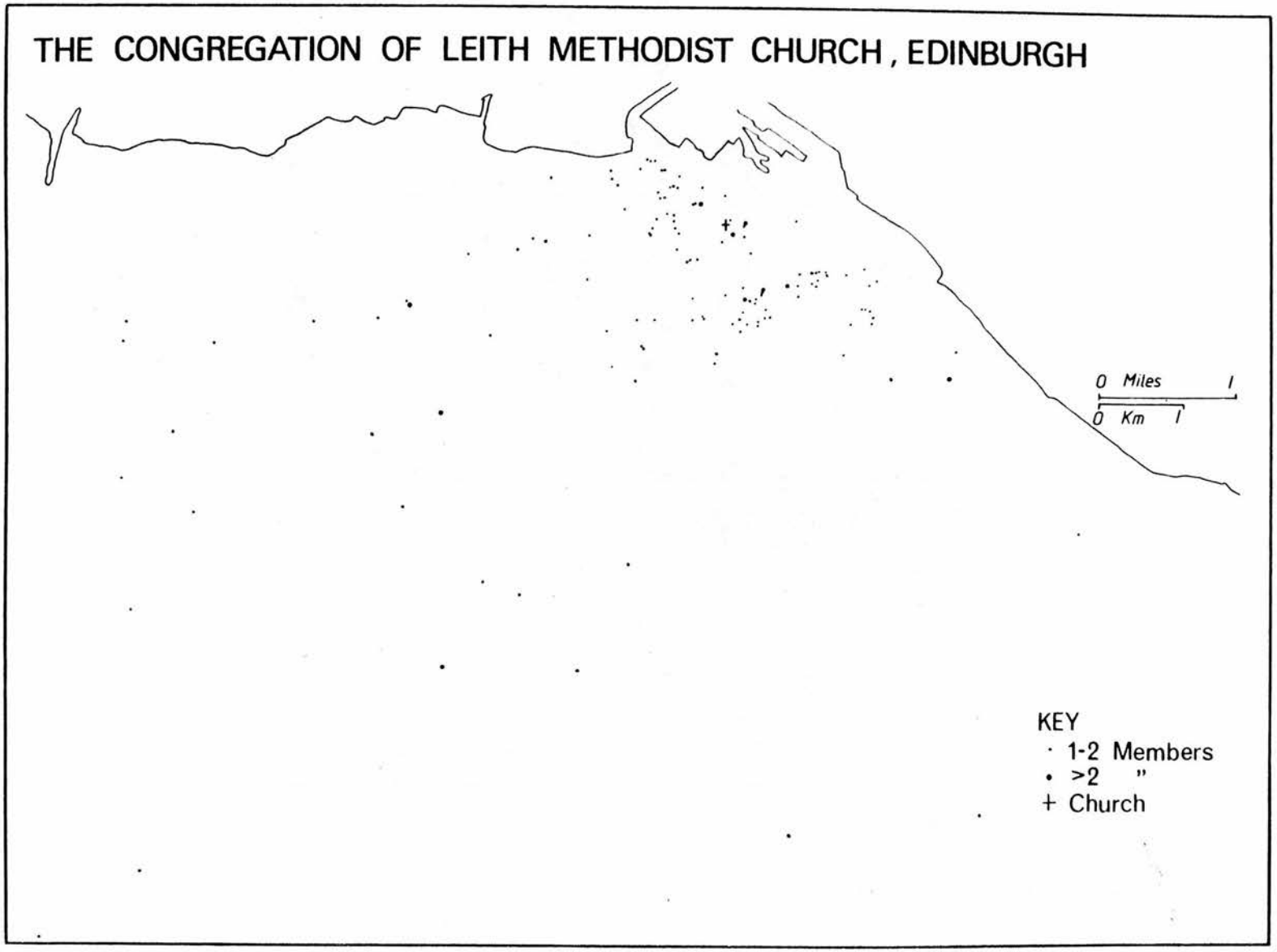
[1] The only exception to this rule is Falkirk United Free church which although outlying has a gathered form. This reflects the fact that it is the only facility of its denomination within the burgh.

Figure 9.7


THE CONGREGATION OF LEITH METHODIST CHURCH, EDINBURGH
0 Miles 1
0 Km 1
KEY
· 1-2 Members
• >2 "
+ Church

and rural areas and this forms the subject of section 9.5. The second approach is to examine the variation in urban areas by sub-dividing the urban congregations into community and gathered types (see section 9.6).

TABLE 9.1 A TYPOLOGY OF THE SURVEY CONGREGATIONS

| Area | With a Parish System | | Without a Parish System | |
|---|---|---|---|---|
| | Gathered | Community | Gathered | Community |
| Urban city-centre | Falkirk Old<br>St. Pauls<br>Highland Tolb. | | Augustine Bristo<br>St. Columba<br>Seventh Day Ad.<br>St. Marks | |
| Urban outlying | | Bainsford<br>Carrick Knowe<br>South Leith | Falkirk U.F. | Leith Meth.<br>Corst.U.F. |
| Rural | Kilmadock<br>St. Marys West<br>St. Johns<br>Kinlock Rannoch<br>Duror<br>Glencoe<br>Strontian<br>Kilchoan | | | |

The typology of survey congregations has been restricted, however, to Protestant Churches because of non-consent and the unsuitability of the Catholic parish list as a samping frame. The only method of by-passing this limitation is to use a church-door

survey method. Consent was given to survey three parishes in the centre of Edinburgh by this method.

## 9.2 A SURVEY OF THREE ROMAN CATHOLIC PARISHES

The purpose of this survey is to establish whether the Catholic parishioner behaves in the same way with respect to central churches as do the members of other denominations. The survey consisted of taking two masses on one Sunday in 1977 and using three interviewers at each church to administer a short questionnaire at the church door.

### (1) Patterns of Home Addresses

Each respondent was asked for his place of residence and the distributions which resulted are shown in Figure 9.8. The congregation of Sacred Heart, Figure 9.8a, is the most clustered with 64 per cent of the respondents travelling from within the parish boundary and many of the remainder living in close proximity to the parish. Only a few come from areas that are better served, in terms of distance, by other facilities of the same denomination. By contrast, in the congregation of St. Francis, shown in Figure 9.8b, 29 per cent come from within the parish while the remainder are drawn from elsewhere in the city, but especially the southern half. The congregation of St. Patricks, Figure 9.8c, is even more highly gathered with 28 per cent coming from within the parish and a very wide spread of respondents drawn from elsewhere in the city. Both St. Francis and St. Patricks attract many adherents from areas which are closer to alternative facilities of the same denomination.

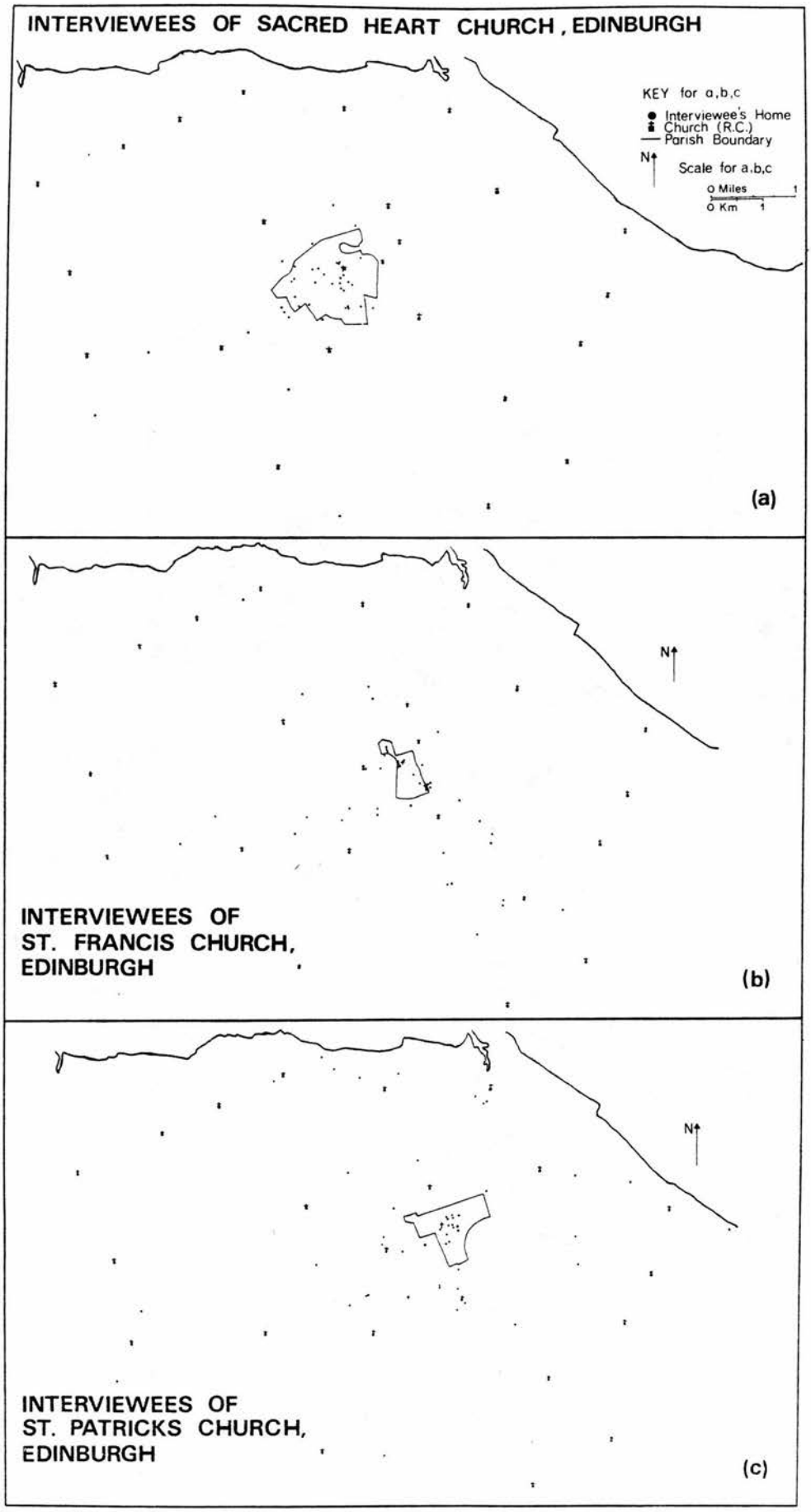

INTERVIEWEES OF SACRED HEART CHURCH, EDINBURGH
KEY for a,b,c
Interviewee's Home
Church (R.C.)
Parish Boundary
N
Scale for a,b,c
0 Miles 1
0 Km 1
(a)
N
INTERVIEWEES OF
ST. FRANCIS CHURCH,
EDINBURGH
(b)
N
INTERVIEWEES OF
ST. PATRICKS CHURCH,
EDINBURGH
(c)

Figure 9.8

In addition to the respondent's place of residence, the questionnaire established basic data for the frequency of attendance, the knowledge of other Catholic churches, travel mode and the reason, if volunteered, for travelling to a particular church.

(2) Further Results of a Short Questionnaire

Unlike the main survey, the respondents were asked to state a reason for the choice of their church because the Catholic survey deals with three neighbouring churches of the same denomination. The reasons given by respondents were diverse, but were found to fall into five principal categories, as shown in Table 9.2. A small proportion gave proximity as a reason for their choice of church except, as might be expected, in the compact congregation of Sacred Heart where it accounted for 60 per cent of the response. Personal preference seems to be very significant in explaining the extent of gathering in the congregation of St. Francis. Respondents in the most highly gathered congregation, St. Patricks, frequently gave ties to the area as the reason for choosing their church which suggests that many of the respondents had lived in the parish and continued to attend their former church.

TABLE 9.2 STATED REASONS FOR THE CHOICE OF CHURCH IN THREE CATHOLIC PARISHES.

| Broad Reason | Number in each parish | | |
|---|---|---|---|
| | St. Patricks | Sacred Heart | St. Francis |
| Preference | 3 | 10 | 16 |
| Ties | 22 | 4 | 10 |
| Liturgy | 14 | 2 | 7 |
| Convenience | 2 | 1 | 2 |
| Closest | 11 | 25 | 10 |
| Total | 52 | 42 | 45 |

These data have shown the importance of choice in creating the types of congregation in the Catholic Church. The respondent's knowledge of alternative facilities can also be examined for a possible role in shaping these three congregations. A comparison of those with any knowledge of alternative facilities closer than their present one to those with no knowledge gave a chi-squared value of 4.6 which, with two degrees of freedom, means that there is no significant difference between the three congregations in terms of the numbers falling into the two categories. When, however, these data are sub-divided into those with a full knowledge of the number of alternative facilities, those with knowledge that no other facility exists and those who are completely wrong, a difference between the respondents in the three congregations was shown by a chi-squared value of 23,8 which is significant at the 0.001 level with four degrees of freedom. From the results, it is noticeable that in both of the gathered congregations, St. Francis and St. Patricks, approximately 50 per cent of the responsents were mistaken about the number of alternative facilities. The congregation of St. Patricks were the least knowledgeable, with 31 per cent of the respondents giving an under-estimation as agianst nine per cent in the congregation of St. Francis. It is possible then that gathering could reflect ignorance of alternative facilities but seen in conjunction with Table 9.2 it is most likely that this behaviour is purposive.

This section has given evidence that the Catholic Church does have congregations in the central part of the city which adopt the same gathered form as was earlier observed for other denominations (Table 9.1). Although it is not possible to execute the same analysis

for the Catholic Church as will follow in the remainder of this chapter for other denominations, a basis for comparison has been created and some explanation offered.

## 9.3 THE ANALYSIS OF THE PRINCIPAL QUESTIONNAIRE SURVEY

### (1) The Interview: A Check Upon Response Error

The first stage in the main survey was to interview a standard number of ten members in each of the survey congregations. In addition to providing data for a combined analysis of postal and interview responses, the interview was of benefit in several other ways. The interview provided an opportunity to assess the accuracy of, and gave guidance for the interpretation of, the answers to several questions. There were three topics for which it was of assistance. The first concerns distance travelled to church and it was found that all interviewees gave a correct statement of distance in terms of the distance categories provided in the structured interview. The second concerns frequency of attendance, for which interviewees gave frank replies but warned of external influences upon attendance such as the frequency of bus services, illness and, in the long-term, the starting of a family. The third concerns the interviewee's residential mobility. It must be recognised that young persons living in the parental home have little control over house location and the same applies to local authority tenants. Both groups could not effectively consider the proximity of church in choosing a home.

(2) The Choice of Statistical Methods

The aim of the study is to establish whether relationships exist between attributes of the sample population and their behaviour. As the sample populations are statistically non-normal it is necessary to employ a non-parametric test. Since we wish to infer from the sample conditions which exist in the total population, a test of significance is required. A threshold significance level of less than/equal to five per cent will be used. A conventional test which satisfies all of these requirements is the chi-squared test. On its own this test only indicates the presence or absence of an association. When a relationship is suggested the Cramer's V statistic will be used to test its strength. This statistic adjusts for the number of cases in the test and the size of the contingency table and takes a value between zero and one according to the strength of the association.

The use of chi-squared testing relies upon the satisfaction of several assumptions. Most of these were automatically satisfied by the nature of the data since it is recorded in absolute figures, each observation is independently associated with a respondent and each response can take one value only. A further assumption concerns the frequency distribution of the raw data which should not be such as to produce low expected values. Opinions vary on the robustness of the chi-squared test with respect to low expected values but a common rule is that for tables with more than a single degree of freedom, no more than one fifth of the expected frequencies should be less than five, and certainly none should be less than one (for example Hays, 1974, p.736).

The chi-squared test and the Cramer's V statistic tell respectively of the presence and degree of association but tell nothing of the manner of association. For this reason it has been recommended that a measure of predictive association be used in conjunction with chi-squared:

> In the light of its somewhat complicated statistical character, a significant Pearson $\chi^2$ test may mean next to nothing, but an apparent predictive relationship in the data is usually worth looking into.
>
> (Ibid., p.753).

From a variety of measures the Gamma statistic was chosen. It is based upon ordered pairs and its numerical value, which ranges between zero and one, measures the relative superiority over guessing of predicting order on one variable from order on another. The sign indicates which of two possible predictions of order is more accurate, a positive sign indicates the same order on predicted variable as on predictor, while a negative sign indicates reverse order.

The Gamma statistic has the further advantage of utilising the ordinal nature of the data. Dichotomous variables such as sex or yes/no alternatives can be treated as ordinal data. The statistic, though, is calculated only for untied pairs, that is where two cases do not fall on the same level and can therefore be ordered. Marginal distributions with heavy concentrations in a few categories yield many tied pairs and therefore gamma will be based on an even smaller number of pairs than it would in a more regular marginal distribution (Mueller, 1970, p.287). However, the need to ensure that marginal distributions do not produce low expected cell values for the chi-squared test also has the advantage of controlling the number of tied pairs that could potentially detract from the Gamma statistic.

(3) The Pooling of Categories

Categories are often pooled after obtaining survey results in order to satisfy the assumption of chi-squared testing which concerns expected cell values. Low expected values are removed frequently by amalgamation of the original categories. Normally, it is recommended that this practice be avoided, where possible, because of the effect which it has upon the randomness of the distribution. The main concern is, however, that it should not make a nonsense of the underlying research hypothesis.

In the analyses which follow low expected values occurred for a variety of reasons. On each occasion when pooling was necessary the caveat that it should have a logical rationale was observed. The reasons fall into two groups:

(i) Certain categories were quite often redundant. Redundancy occurred in two circumstances. First, the need for universality in the design of the questionnaire text meant that, for example, some distance categories which applied in urban areas were not applicable to rural areas. Second, some categories were virtually unused, for example elaboration beyond two for the number of house-moves since 1965.

(ii) On occasions the pooling of categories was simply mechanical. For example, job descriptions gave up to twenty socio-economic groups for the economically active. Clearly, there were too many categories and so these had to be regrouped to ensure that expected cell values were not low. Four broad categories were derived for the economically active - professional/managerial, intermediate non-manual, foremen/skilled, low skill - and these were placed alongside a division of the economically inactive into women less than 65 years of age and the retired of all sexes over 65 years of age.

(4) The Weighting of Data during Analysis

In the previous chapter it was shown, on the basis of two congregations, that there were no significant differences between the response and non-response strata. This means that the responses from each congregation can be weighted to represent the number that would be expected from a ten per cent sample. In this way each congregation would have its true numerical importance relative to other congregations in joint analysis. Weighting was easily achieved at the time of making statistical comparisons. However, it is prudent to establish exactly what effect weighting has upon the results of analyses.

A comparison of the results of analyses which used weighted and then unweighted data was made for this study. In the urban/rural analyses, to be presented in section 9.5, only three relationships differed for urban congregations, and only one relationship differed for rural congregations, from those presented after the removal of weights. For the urban community/gathered analyses, which follow in section 9.6, only two relationships differed in community congregations and one in gathered congregations from those presented after the removal of weights. As can be judged, weighting has only a small effect, confirming that the presence of relationships in the data is not dependent upon the weighting procedure. The principal effect of weighting was to affect the numerical size of all chi-squared statistics, but rarely did it alter the conclusion as to the existence of a significant relationship.

(5) The Basic Demography of the Sample Population

The first results to be extracted from the survey are basic facts which describe the population under study. Details of the age and sex structure of the congregations of the Church of Scotland and for all rural and all urban congregations are presented in Table 9.3. Not surprisingly the total population of all congregations has virtually the same structure as that shown in Table 9.3 for the Church of Scotland since this denomination accounts for three quarters of the sample population and 10 of the 21 congregations. The table also shows a distinct contrast between the characteristics of urban and rural congregations which number 13 and 8 respectively. The population of urban congregations is older and has a higher proportion of females according to this sample.

Of most interest is the age structure of the ten congregations belonging to the Church of Scotland. Approximately 14 per cent of the sample is under the age of 35. In Chapter V it was noted that a survey in 1971 showed that 22 per cent of the membership of the Church of Scotland was below the age of 35. The results of the transect survey therefore conform in direction to the expected bias of age structure but are of a more extreme order. This more extreme nature could reflect two factors. First, that the transect congregations are drawn from established areas which contain only small amounts of new housing. Second, that these results are from six years further on in time and will reflect the continuing reduction in the numbers of new communicants.

TABLE 9.3 THE DEMOGRAPHIC STRUCTURE OF SURVEY RESPONSE IN PERCENTAGES

| Variable | | Congregations | | |
|---|---|---|---|---|
| | | All Denominations | | The Church of Scotland |
| | | Urban | Rural | |
| AGE - | 15-20 | 0.8 | 3.2 | 1.1 |
| | 20-24 | 3.8 | 3.9 | 3.3 |
| | 25-34 | 10.5 | 8.3 | 9.2 |
| | 35-44 | 11.3 | 17.9 | 12.7 |
| | 45-54 | 19.1 | 21.8 | 21.2 |
| | 55-64 | 16.9 | 13.5 | 17.2 |
| | 65-74 | 24.5 | 23.7 | 24.8 |
| | 75 | 13.3 | 8.3 | 10.2 |
| SEX - | Male | 30 | 37 | 30 |
| | Female | 70 | 63 | 70 |

## 9.4 THE STRUCTURE OF THE ANALYSES

Now that the mechanics of the analyses have been discussed and a basic description of the sample population has been presented, it is apposite to outline the stages which the analyses will follow. The first stage compares urban and rural congregations and the second compares community and gathered congregations in urban areas. At each

stage, not only will direct comparisons be made but also the results for three 'grouped' hypotheses will be examined. The content of these hypotheses was outlined in the previous chapter but it may be helpful to restate them here and also to present the rationale for examining them:

(i) The first hypothesis proposes that distance decay exists and that travel-distance is sytematically related to characteristics of the member. The concern is to establish a model of present spatial behaviour.

(ii) The second hypothesis proposes that the likelihood of members travelling further to church will vary systematically with the characteristics of the congregation. These results may have implications for planning in the Church.

(iii) The third hypothesis proposes that spatial behaviour is related to residential mobility. It has already been noted that it is not within the scope of this survey to examine the effect of mobility upon persons who were formerly church members, but this survey can establish whether mobility contributes to the differences in behaviour amongst those persons who have remained as church members after moving.

## 9.5 THE PRESENCE OF RELATIONSHIPS IN URBAN AND RURAL CONGREGATIONS

### (1) Urban and Rural Congregations: Direct Comparison

Direct comparisons between the congregations in the two areas using weighted absolute values for certain basic variables produce the following results:

TABLE 9.4 A COMPARISON OF URBAN AND RURAL CONGREGATIONS FOR SELECTED VARIABLES

| Variable | $\chi^2$ | Degree of Freedom | Significance Level |
|---|---|---|---|
| Seg | 18.25 | 5 | 0.005 |
| Age | 16.61 | 7 | 0.02 |
| Carown | 42.02 | 2 | 0.001 |
| Tochurch | 17.97 | 5 | 0.01 |
| Howoften | 16.72 | 2 | 0.001 |

All of these variables prove to be significantly different between urban and rural areas within the threshold of the five per cent significance level. There is a direct contrast between rural and urban congregations in social group (Seg) as the urban congregations have a higher proportion of economically inactive members. This contrast directly relates to the age difference that was observed in section 9.3 and is confirmed statistically in Table 9.4. A higher proportion of rural members own, or have access to, a car. Whereas this might suggest greater mobility in rural areas in fact the distance travelled to church (Tochurch) in both rural and urban areas is rarely more than five miles and the members of rural congregations live closer to the church: 38 per cent of rural members live within a quarter of a mile and only 17 per cent live between one and five miles from church whereas only 26 per cent of urban members live within a quarter of a mile from church and as many as 34 per cent live between one and five miles. Surprisingly, in spite of the rural members' greater proximity to church, their

frequency of attendance (Howoften) is lower on average than in urban areas such that 12 per cent of rural members attend less than once a year as against four per cent in urban congregations, and only 24 per cent of rural members attend once a week compared to 37 per cent of urban members.

Apparently, the population of urban congregations is older, more economically inactive, has a lower level of car ownership and tends to travel further to church, yet attends church more frequently than the members of rural congregations. It now remains to ascertain what effect these differences, and others, have upon the relationships that can be postulated to exist in the two populations.

(2) Urban and Rural Congregations: The Travel-Distance Hypothesis

At a superficial level, the first conclusion which can be drawn from Table 9.5 is that a rural/urban contrast exists because few significant relationships arise from the sample of rural congregations. Although a non-significant relationship is statistically correct, this does not mean that no relationship exists but only that the sample has failed to prove an association. This caveat applies henceforth for both significant and non-significant relationships, such that the conclusions drawn are applicable only to the sample congregations which represent a variety of conditions found in Scotland and cannot necessarily be said to apply for the entire country.

A closer examination of Table 9.5 reveals that for urban congregations many factors are statistically related to travel-distance. Among these there are several which might have been anticipated. The

Table 9.5 - Factors Related to Distance Travelled in Urban and Rural Congregations Using Weighted Values

| Variable | Urban (13 congregations, N = 640) | | | | | Rural (8 congregations, N = 155) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma |
| Travmode | 334.4 | 8 | 0.0001 | 0.510 | -0.730 | 57.9 | 3 | 0.0001 | 0.620 | -0.805 |
| Age | 46.0 | 24 | 0.005 | 0.133 | -0.077 | | | NS[1] | | |
| Carown | 31.7 | 8 | 0.0001 | 0.157 | -0.175 | | | NS | | |
| Towork | 72.9 | 16 | 0.0001 | 0.257 | 0.265 | | | NS | | |
| Longchm | 18.8 | 8 | 0.02 | 0.121 | -0.270 | | | NS | | |
| Church[2] | 55.1 | 8 | 0.0001 | 0.207 | 0.300 | Low Cell Values[3] | | | | |
| Chcloser | 177.4 | 4 | 0.0001 | 0.529 | -0.666 | 7.7 | 3 | 0.05 | 0.222 | -0.225 |
| Sex | | | NS | | | | | NS | | |
| Howoften | | | NS | | | 12.7 | 6 | 0.05 | 0.201 | 0.141 |
| Howmch | | | NS | | | Low Cell Values | | | | |
| Whoelse | | | NS | | | 8.7 | 3 | 0.03 | 0.236 | 0.203 |
| Seg | | | NS | | | | | NS | | |
| Howoften/ Church | 19.7 | 2 | 0.0001 | 0.175 | 0.183 | 16.0 | 2 | 0.0003 | 0.160 | 0.165 |

I - NS = Not significant using a rejection level of more than five per cent (0.05)

2 - Urban N = 304, Rural = 58

3 - Low Cell Values - where the assumption of chi - squared testing concerning the size of expected frequencies cannot be satisfied by using a valid pooling of categories because of the skew in the data.

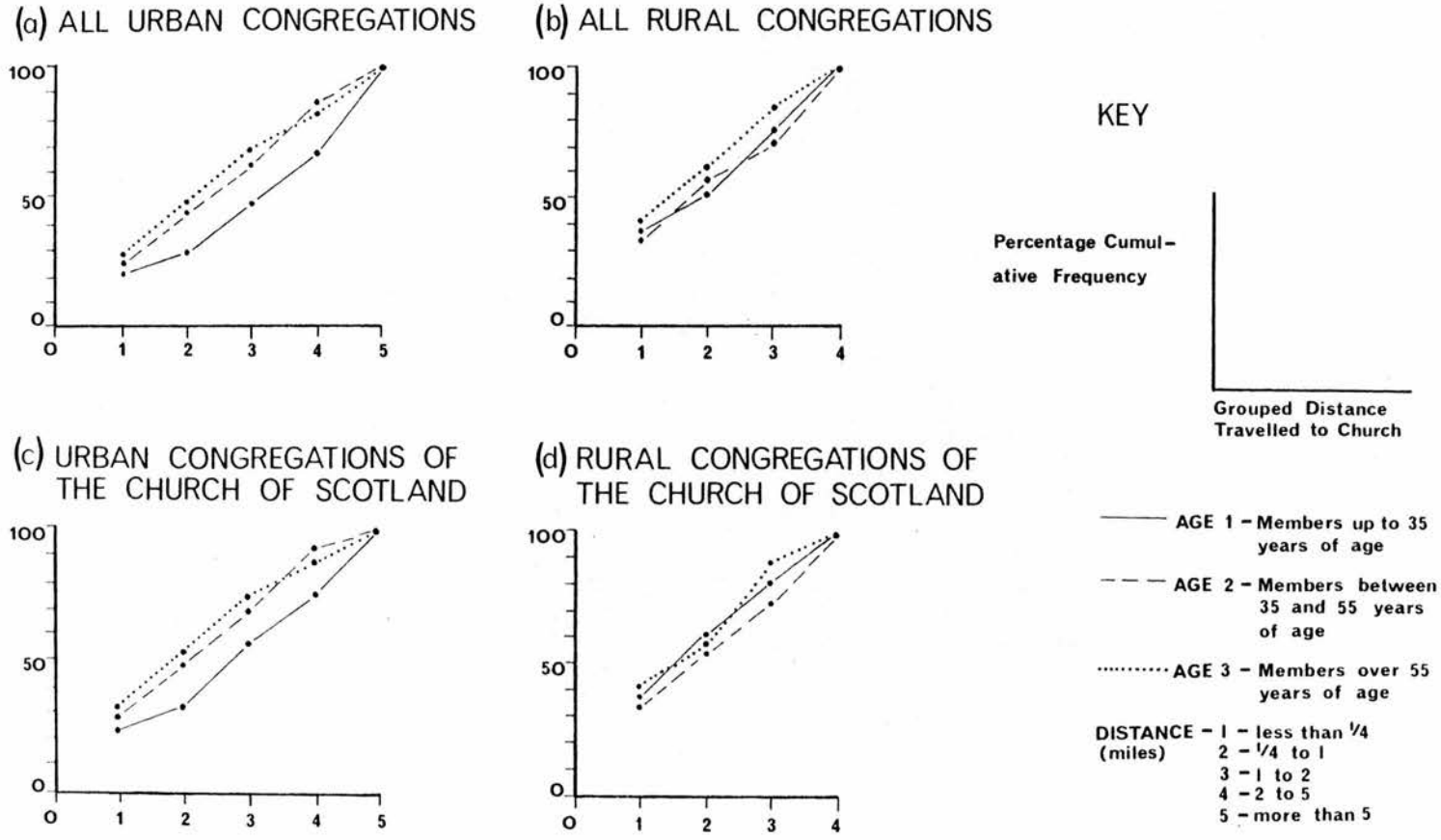
mode of travel (Travmode) is most strongly related in that the distance travelled progressively increases according to whether a member walks, uses a bus, or travels by car to church. A strong relationship is also revealed between car ownership and travel-distance, though this is less strong than the relationship to all modes of travel because those who have a car do not always travel furthest. Another strong relationship occurs between distance travelled and the number of churches known by the respondent to be closer, so it appears that members are aware of alternative facilities. Similarly, the distance travelled to church is related to the level of importance given to the proximity to church by those members who considered it important to house location.

There are several statistically significant relationships in urban congregations which are less obvious than those just considered. The distance travelled to church is related to distance travelled to work. It also appears that those who have been church members for a longer time (Longchm) travel the least distance to church, which probably reflects the friction of age rather than a deliberate process. That age has an effect upon travel can be seen from Figure 9.9a, whereby those under 35 years of age travel greater distances than those over 35 years of age, though it must be noted that the relationship has a low predictive value.

The factors which show no effect upon travel-distance in urban areas include sex, number of previous congregational allegiances (Howmch), number travelling with respondent to church (Whoelse) and social group. Perhaps the most surprising result is that the frequency

Figure 9.9

# THE RELATIONSHIP BETWEEN AGE AND TRAVEL - DISTANCE



of attendance is unrelated to travel-distance which could mean that there is no distance decay effect. So although the frequency of attendance is related to the importance given to the proximity of the church in choosing a home location, the lack of a relationship between travel-distance and attendance implies that while more frequent attenders tend to be concerned with the proximity of their church, attendance is purposive and will vary regardless of distance.

By contrast, in rural areas, only a relatively small number of the same factors are statistically related to travel-distance. Notable among the non-significant relationships is that of age to travel-distance which, as Figure 9.9b shows, is very weak. Two relationships cannot be tested statistically because the distribution of the raw data creates low expected frequencies even after the standard pooling of categories. The reason for this circumstance is in itself of interest. In the case of church proximity, only 37 per cent of the respondents considered it to be of importance in choosing a house location which may reflect the sparse provision of facilities in rural areas. In the case of the number of previous congregational allegiances, 88 per cent of rural respondents had belonged only to their current congregation which is an even higher figure than that in urban areas where 83 per cent of the respondents had belonged only to their current congregations.

Of the few relationships that do hold for rural congregations two are in common with, and two are different to, the relationships that hold for urban congregations. As expected travel distance is related to travel mode and the number of alternative facilities.

Members in rural areas are aware, as in urban areas, of the existence of alternative facilities. The two distance relationships that uniquely apply in rural areas are frequency of attendance and the number of persons travelling to church with the respondent. Those who travel alone travel the least distance which may reflect the tendency for the single people to be elderly. However, of most interest is the decay in attendance with increasing distance from church though it is difficult to ascertain with certainty which is cause and which is effect.

Assistance to the interpretation of the relationship between distance and attendance in urban and in rural areas may be offered by an analysis of the replies to a question which seeks factors restricting attendance. The replies to this question form a varied and small sample, 27 per cent of urban members and 42 per cent of rural members volunteered a reason for not attending more frequently. A varied and small response was expected because the question is not relevant to those who attend once a week - 37 per cent of urban members and 24 per cent of rural members - and also because some members would be unwilling to give an answer. Provided that this limitation of the response to this question is noted we can examine the replies which are shown in Table 9.6.

TABLE 9.6 STATED REASONS FOR NOT ATTENDING CHURCH MORE OFTEN

| Reason | Congregations | | | | | |
|---|---|---|---|---|---|---|
| | Urban | | | Rural | | |
| | Number | Rank | Percentage | Number | Rank | Percentage |
| Illness/Age | 55 | 1 | 32 | 12 | 2 | 18.5 |
| Inclination | 31 | 2 | 18 | 6 | 4 | 9 |
| Children | 15 | 4 | 9 | 9 | 3 | 14 |
| Shift Work | 28 | 3 | 16 | 25 | 1 | 38.5 |
| Distance | 15 | 4 | 9 | 2 | 8 | 3 |
| Housework | 11 | 6 | 6 | 4 | 5 | 6 |
| Competing Activities | 3 | 9 | 2 | - | - | - |
| Care for Sick | 5 | 8 | 3 | 4 | 5 | 6 |
| Visiting | 8 | 7 | 5 | 3 | 7 | 5 |
| Total | 171 | - | 100 | 65 | - | 100 |

Table 9.6 shows that, in absolute number and rank, members mentioned distance less frequently in rural than in urban congregations, but a comparison of percentages reveals that distance is relatively insignificant in both areas. Most notable is the greater importance given to personal factors. These results are neither conflicting evidence to the distance decay observed earlier for rural congregations nor are they supportive evidence for the absence of distance decay in urban areas, since they can be viewed only as the principal factors volunteered by the respondents. They do suggest, however, that extreme care should be taken in the interpretation of distance decay

and that distance is only one of the possible influences upon the frequency of attendance.

In conclusion, the travel-distance hypothesis is less successful for rural congregations than for urban. The same conclusion also applies for the congregations of the Church of Scotland which in isolation differ on the basis of only one relationship, that is the number of people travelling with the respondent. Travel-distance in urban congregations is related to the more obvious factors of travel mode, car ownership, number of alternative facilities and the importance given to the proximity of the church as well as to the less obvious factors of age, distance travelled to work, and the length of church membership. There is a greater probability of distance decay in rural than in urban congregations.

(3) Urban and Rural Congregations: The Willingness to Adjust Hypothesis

Members were asked how much further they would be prepared to travel to church and a model is formed from their replies. The topic is itself hypothetical but the main concern with such questions is whether the response is truthful. The confidence that can be placed in the response can be established from a 'check' question. In this study it is ascertained whether people whose willingness to travel further is greatest would also state that it would be necessary to alter their form of transport (Change). In both urban and rural congregations this association occurred, as shown in Table 9.7.

In urban areas, 44 per cent of the members were not prepared to travel further to church whereas in rural areas only 34 per cent of the members were unwilling to adjust. The greater willingness to adjust in rural areas could reflect the shorter distances being travelled currently but, most likely, the recognition that since rural facilities are sparse an adjustment would involve greater distances than in urban areas.

By contrast to the previous section, the proposed relationships have greater common applicability to both urban and rural areas (Table 9.7). However, while the distance that people are prepared to travel further to church might be expected to be related to their mode of travel, this is apparent only in an urban context. This may reflect the higher levels of car ownership in rural areas and for this reason the willingness to travel further bears a stronger relationship to car ownership in rural areas (Gamma = - 0.753) than in urban areas (Gamma = - 0.388). Similarly, it might be expected that the willingness to travel further might in some way be related to the distance already being travelled, but there is no significant association in rural congregations and while it is significant in urban congregations it has only a low predictive value (Gamma = - 0.015).

Several factors are held in common in both urban and rural congregations. The length of church membership does not affect the preparedness to travel further in either rural or urban areas but sex, social class and the regularity of attendance do. Females are the least prepared to travel further to church which possibly reflects a lower mobility. Likewise, the economically inactive,

Table 9.7 - Factors Related to the Additional Distance Prepared to Travel to Church in Urban and Rural Congregations Using Weighted Values

| Variable | Urban (13 congregations, N = 640) | | | | | Rural (8 congregations, N = 155) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma |
| Change | 21.3 | 4 | 0.0003 | 0.252 | -0.334 | 12.7 | 2 | 0.002 | 0.357 | -0.552 |
| Seg | 79.6 | 20 | 0.0001 | 0.178 | -0.033 | 17.6 | 4 | 0.001 | 0.238 | -0.295 |
| Tochurch | 72.0 | 16 | 0.0001 | 0.168 | -0.015 | | | NS | | |
| Travmode | 66.3 | 8 | 0.0001 | 0.228 | -0.104 | | | NS | | |
| Howoften | 27.1 | 12 | 0.007 | 0.119 | -0.113 | 18.6 | 4 | 0.0009 | 0.244 | -0.350 |
| Carown | 67.8 | 8 | 0.0001 | 0.230 | -0.414 | 17.3 | 2 | 0.0002 | 0.333 | -0.753 |
| Sex[I] | 32.7 | 5 | 0.0001 | 0.378 | -0.388 | 13.5 | 2 | 0.001 | 0.294 | -0.359 |
| Longchm | | | NS | | | | | NS | | |
| Towork | Low Cell Values | | | | | Low Cell Values | | | | |
| Howoften/ Longchm | 8.7 | 2 | 0.01 | 0.116 | -0.311 | | | NS | | |
| Howoften/ Othden | 14.5 | 3 | 0.002 | 0.150 | 0.256 | | | NS | | |
| Howoften/ Sex | | | NS | | | | | NS | | |

I - This is a dichotomous variable which although composed of two nominal categories can be treated as ordinal in measurement and satisfies the requirement for the use of a Gamma statistic.

particularly the urban retired, are least prepared to travel further which again reflects physical mobility. The regularity of attendance ought to have a noticeable effect upon the willingness to travel further to church and, in fact, this is confirmed by statistical testing. The less regular attender is least prepared to travel further in both urban and rural areas. It appears that the regularity of attendance is a measure of the strength of demand for the service. This idea is extended by examining the relationship between the regularity of attendance and other variables which may reflect the level of commitment, for example the length of church membership and the number of other denominational allegiances, but these prove to be significant only in urban congregations.

Isolating the Church of Scotland parishes from the urban and rural groups shows that the same relationships hold for this denomination as for the aggregation of all survey congregations, with the exceptions of sex and social class in rural areas.

It appears, then, that the extent of the willingness to adjust can be modelled in urban and rural congregations by car ownership, frequency of attendance, sex and social class. For the complete set of survey congregations and for the Church of Scotland, the hypothesis has greater applicability in urban areas in that the mode of travel and present travel-distance are confirmed as predictor variables in addition to those for rural areas.

(4) Urban and Rural Congregations: The Residential Mobility Hypothesis

The results from an examination of members who have moved house at any time as well as specifically since 1965 are presented in Tables 9.8 and 9.9. In urban, but not rural, areas it is notable that out of those who have moved since 1965, the economically inactive church members are the least mobile which largely reflects the low mobility of retired persons who are more common in this sample of urban congregations than in rural areas. Likewise a move since 1965 is shown to affect the distance travelled to church only in urban areas giving a Gamma statistic of - 0.135. This negative sign suggests that members of urban congregations who move tend to be further away from church possibly because a former allegiance can be maintained in urban areas unlike rural areas in which the distance involved would be too great. That members who move but retain their former congregational allegiance tend to be further away from church is confirmed by the negative relationship between the distance from church (Closerch) and the retention of allegiance (Staych). Being closer to church only has an effect upon attendance after a move (Attendch) in rural congregations.

Table 9.9 gives additional support to the argument. Only a small proportion of the members of urban congregations, 19.5 per cent, have undertaken long distance moves which is another factor in support of the greater ability of urban members to retain their former congregational allegiance compared to rural members of whom 43 per cent undertook long distance moves. Another noteworthy aspect of the proportions of long and short distance moves, using unweighted

Table 9.8 - Residential Mobility and Behaviour in Urban and Rural Congregations Using Weighted Data

| Proposed Relationship | Urban (13 congregations, N = 584) | | | | | Rural (8 congregations, N = 150) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma |
| Staych/ Closerch | 20.6 | 2 | 0.0001 | 0.188 | -0.247 | 9.2 | 2 | 0.01 | 0.248 | -0.222 |
| Closerch/ Attendch | | | NS | | | 22.4 | 4 | 0.0002 | 0.360 | 0.393 |
| Seg/ Numbmove[I] | 32.7 | 5 | 0.0001 | 0.377 | -0.388 | | | NS | | |
| Tochurch/ Moves65[2] | 11.4 | 4 | 0.02 | 0.13 | -0.135 | | | NS | | |

I - Those who have moved since 1965 = 239 in urban areas and 73 in rural areas.

2 - Based on the entire data set = 640 in urban areas and 155 in rural areas.

Table 9.9 - Residential Mobility in Urban and Rural Congregations Using Unweighted Data

| Description of Move[I] | Urban | | Rural | |
|---|---|---|---|---|
| | Absolute Number[2] | Percentage | Absolute Number[2] | Percentage |
| Internal to Area of Residence | 148 | 80.5 | 35 | 54 |
| Distance Less than 20 miles | 13 | 7 | 14 | 22 |
| Distance in Excess of 20 miles | 13 | 7 | 8 | 12 |
| From England and Overseas | 10 | 5.5 | 8 | 12 |
| Total Moves | 184 | 100 | 65 | 100 |
| Unweighted Total Members | 513 | | 148 | |

2 - $x^2$ = 19.1 degrees of freedom = 3, significance = 0.001 I - based upon answers to question 11.

values, is that since approximately 19.5 per cent of urban moves were long distance but only 35 per cent of urban members have moved since 1965, and since 46 per cent of rural moves were over long distances and 44 per cent of rural members have moved since 1965, this means that about 7 per cent (19.5 per cent of 35) of urban members and 20 per cent (46 per cent of 44) of rural members have moved long distances since 1965. Such low proportions of practising church members who have moved over significant distances are as low as might be expected if the relationship between lapsing from membership and residential mobility, noted in Chapters V and VI, is true.

In conclusion, residential mobility has a greater effect upon behaviour in urban than in rural congregations. This is possibly related to the higher proportion of short distance moves by the members of urban congregations. Virtually the same conclusions apply for the Church of Scotland in isolation because although travel-distance in urban congregations is no longer significantly related to mobility since 1965, the effect upon attendance of travel-distance from church following a house-move becomes significant for urban congregations.

## 9.6 THE PRESENCE OF RELATIONSHIPS WITHIN TWO TYPES OF URBAN CONGREGATION

An understanding of urban congregations as a whole is only as good as the understanding of variation within this group of congregations. The contrast between two types of congregation - the

community and the gathered form - has already been made in section 9.1. The same set of relationships that have been examined for urban and rural congregations as aggregations will now be examined for the two types of urban congregation. However, the congregations of St. Marks, the Seventh Day Adventists and Falkirk United Free are omitted from the analyses because they are the only facilities of their denomination within the urban area and therefore do not adopt a gathered form by choice. Five community and five gathered congregations remain, and direct comparisons between the two types of congregation follow.

(1) Community and Gathered Urban Congregations: Direct Comparison

Comparisons of the two types of congregation can be made from the data given in Table 9.10. Most of the members of community congregations, 79 per cent, travel from within one mile of the church whereas most members of gathered congregations, 65 per cent, travel from areas more than one mile from church. Surprisingly, though, the two sets of congregations have a virtually identical social structure. It seems therefore that the contrast in travel-distance cannot be explained in terms of social distance since the members of both types of congregation are drawn from a mix of social areas. More contrasts than similarities, though, are seen from Table 9.10. In community congregations there is an almost equal split between those with a car and those without, being 41 per cent and 48 per cent, respectively whereas in gathered congregations 55 per cent own a car while 38 per cent do not, and the remainder in each case have only occasional access to a car. These figures suggest that the

Table 9.10 - Some Percentage Comparisons between the Community and Gathered Forms of Urban Congregation Using Weighted Data

| Variable | Community | Gathered |
|---|---|---|
| Tochurch - | | |
| Less than ¼ Mile | 34 | 12 |
| ¼ - 1 Mile | 45 | 23 |
| 1 - 2 Mile | 13 | 31 |
| More than 2 Miles | 8 | 34 |
| Seg - | | |
| Economically Active 1 | 4 | 12 |
| 2 | 24 | 25 |
| 3 | 6 | 7 |
| 4 | 8 | 5 |
| Economically Inactive | | |
| Women less than 65 | 17 | 12 |
| Retired | 41 | 40 |
| Carown - Yes | 41 | 55 |
| Sometimes | 11 | 7 |
| No | 48 | 38 |
| Howoften - Each Week | 31 | 49 |
| 1/2 Times a Month | 28 | 28 |
| 2/3/4 Times a Year | 36 | 18 |
| 1 a Year or Less | 5 | 5 |
| Considering the Proximity of Church in House Location | 56 | 33 |
| Chcloser - Yes | 45 | 71 |
| No | 55 | 29 |

greater distance travelled in gathered congregations is a result of the greater physical mobility of their members. This inference is supported by the finding that while social group and car ownership are very closely related - Gamma is 0.448 for community and 0.587 for gathered congregations - we have already seen that both sets of congregations have a similar social structure and so the difference in car ownership between the two congregations reflects a true difference in their relative mobility rather than their wealth.

There is another direct contrast between the two types of congregation in terms of their attendance pattern. In the community congregation there is little difference between the numbers who attend regularly and the numbers who attend only a few times a year. In the gathered congregations, however, there is a distinct gradient with virtually half of the members, 49 per cent, attending once a week and 18 per cent attending a few times a year. These figures suggest that the gathered congregations tend to include more highly committed members. Additionally, those in gathered congregations are less concerned with the proximity of the church since only 33 per cent considered it important to the choice of a house as against 56 per cent of the members of community congregations. In gathered congregations commitment is to a particular church rather than to its proximity. It can also be deduced that these behaviour patterns do not arise from ignorance of alternative facilities since 71 per cent of the members of gathered congregations knew of facilities that were closer to their home than their present one.

So, in terms of direct comparison the two types of urban congregation are very different entities. The following sections examine the relationships which model behaviour in each.

(2) Community and Gathered Urban Congregations:
The Travel-Distance Hypothesis

Each of the relationships which were observed for urban congregations as a whole (Table 9.5) holds for at least one of the two sub-types of urban congregations (Table 9.11). Travel-distance is related to the mode of travel in both types of congregation but it is notable that car ownership affects distance travelled only in community congregations. Since there is a lower level of car ownership in community congregations compared to gathered congregations the discrimination between those who have access to a car and those who do not will have a more marked effect in community congregations, The knowledge of alternative facilities is related to travel-distance in both types of congregation, but the weaker predictive association (Gamma = - 0.357) in gathered congregations possibly reflects the greater variety of areas, with varying levels of provision, from which the members of gathered congregations are drawn. The duration of church membership affects travel-distance only in gathered congegations and possibly reflects the increase in age as the duration of membership increases which would tend to make access more difficult. This conclusion is confirmed by another relationship which holds only for gathered congregations such that age is related to travel-distance only in gathered congregations; as age increases travel-distance decreases. In community congregations age has less effect possibly because of better access and therefore we would not expect travel-distance to be related to the duration of church membership. Another factor which applies only in one type of congregation is the rank given to the proximity of church when it was considered of importance

Table 9.11 - Factors Related to the Distance Travelled to Church in the Two Forms of Urban Congregation Using Weighted Data

| Variable | Community (5 congregations, N = 416) | | | | | Gathered (5 congregations, N = 205) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma |
| Travmode | 164.0 | 6 | 0.0001 | 0.444 | -0.760 | 107.2 | 6 | 0.0001 | 0.512 | -0.558 |
| Carown | 10.3 | 3 | 0.02 | 0.158 | -0.135 | | | NS | | |
| Church | 30.5 | 6 | 0.001 | 0.191 | 0.224 | | | NS | | |
| Chcloser | 141.4 | 3 | 0.0001 | 0.587 | -0.846 | 26.4 | 3 | 0.0001 | 0.361 | -0.357 |
| Longchm | | | NS | | | 9.1 | 3 | 0.03 | 0.211 | -0.484 |
| Age | | | NS | | | 32.1 | 15 | 0.006 | 0.229 | -0.221 |
| Towork | Low Cell Values | | | | | Low Cell Values | | | | |
| Howoften* | | | NS | | | | | NS | | |
| Whoelse* | | | NS | | | | | NS | | |
| Sex* | | | NS | | | | | NS | | |
| Seg* | | | NS | | | | | NS | | |

* - Factors which were not significantly related to travel - distance for all urban congregations.

in house location. In community congregations the relationship adopts the expected direction, that is positive, but in gathered congregations the relationship is not significant and supports an earlier conclusion that members of gathered congregations are least concerned with proximity.

There are several factors which apply to neither community nor gathered congregations. Most of these would not be expected to hold as they did not hold for urban congregations as a whole and it is important that they do not hold for either of the components of urban congregations. For example, the frequency of attendance does not relate to travel-distance in either gathered or community congregations and so confirms the earlier conclusion, based upon urban congregations as a whole, that distance decay does not appear, on the basis of this sample, to exist in urban areas. In a similar line of reasoning, if a relationship did hold for all urban congregations it is still credible provided that it holds for one of the types of congregation as this would reflect variation in the components and would not be a reversal of the original decision based on all urban congregations. Table 9.11 shows that only the relationship between distance travelled to work and travel-distance to church, which held for all urban congregations, cannot be tested for community and gathered congregations. This situation arises because of low cell values and, while not undermining the conclusion that was reached for all urban congregations, the reason for the occurrence of low values is in itself of interest. In community congregations low values occur because 84 per cent of the economically active live within one mile of the church and in gathered congregations because 74 per cent of the economically active live more than one mile from

church. The economically active in community congregations reflect more closely the general tendency in these congregations to live close to the church since 79 per cent of all of their members live within a mile of the church. However, the economically active in gathered congregations have more extreme behaviour in that only 65 per cent of all members live more than a mile from church. The extreme behaviour of the economically active in gathered congregations most probably reflects their greater physical mobility.

In conclusion, there is no distance decay in terms of attendance in either of the types of urban congregation. However, several relationships which hold for one of the types of congregation and not for the other have helped to point to distinctions between the two which may help to explain the differences in behaviour. These distinctions include car ownership levels, the duration of church membership, age and the importance given to the proximity of the church which all bear relationship to travel-distance. In addition, members of the two types of congregation differ in frequency of attendance.

(3) Community and Gathered Urban Congregations: The Willingness to Adjust Hypothesis

First of all it is worth noting that similar proportions, 55 per cent of community congregations and 56 per cent of gathered congregations, are prepared to travel further to church. As might be expected, travel mode is related to additional travel-distance in both types of congregation, but with a positive association in community congregations and a negative association in gathered congregations (Table 9.12). The negative association in community

Table 9.12 - Factors Related to the Additional Distance Prepared to Travel to Church in the Two Forms of Urban Congregation Using Weighted Data

| Variable | Community (5 congregations, N = 416) | | | | | Gathered (5 congregation, N = 205) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma |
| Travmode | 32.8 | 6 | 0.0001 | 0.199 | 0.120 | 32.9 | 6 | 0.0001 | 0.284 | -0.294 |
| Carown | 23.6 | 3 | 0.0001 | 0.238 | -0.350 | 35.4 | 3 | 0.0001 | 0.416 | -0.623 |
| Tochurch | 33.6 | 9 | 0.0001 | 0.164 | -0.209 | 35.6 | 9 | 0.0001 | 0.241 | 0.057 |
| Seg | 54.6 | 9 | 0.0001 | 0.210 | -0.350 | Low Cell Values | | | | |
| Change | 39.6 | 3 | 0.0001 | 0.429 | -0.620 | Low Cell Values | | | | |
| Sex | 22.4 | 3 | 0.0001 | 0.232 | -0.375 | | | NS | | |
| Howoften | | | NS | | | | | NS | | |
| Longchm* | | | NS | | | Low Cell Values | | | | |
| Towork* | | | NS | | | Low Cell Values | | | | |

* - Factors which were not significantly related to the willingness to travel further to church for all urban congregations.

congregations possibly reflects the very high proportion of persons who travel by foot, 65 per cent compared to 27 per cent in gathered congregations, which will overcome the normal relationship between distance and travel mode. The accuracy of the willingness to travel further is checked against the recognition of the need to change the form of travel and this gives a strong predictive association of the expected direction (Gamma = - 0.620) for community congregations. Noticeably, car ownership is strongly related to the degree of willingness to travel further to church in both types of congregation. Willingness also related to the distance that is already being travelled, but in different ways in each type of congregation. In the community congregations there is a negative predictive association because those who currently travel the least distance are most prepared to travel further, whereas in gathered congregations a positive association suggests that current behaviour measures the degree of commitment and the extent of willingness to adjust. However, the small size of the statistic (Gamma = 0.057) for gathered congregations means that the latter conclusion must be framed with caution.

Unfortunately, the occurrence of low cell values mars the drawing of further conclusions for gathered congregations with the exception of sex and the regularity of attendance. No particular reason can be found for these low values; they are simply the result of the interplay of the nature of the distribution of data and the total sample size.

In community congregations social group is significantly related to additional travel-distance while the duration of church

membership and the distance travelled to work are not. The relationship to social group results mainly from the low mobility of the retired. Sex is significantly related to the willingness to travel further to church in community, but not gathered, congregations and this may result from the fact that females already have to rely upon another form of transport than foot in gathered congregations.

The willingness to travel further to church is, strangely, not related to the regularity of attendance for either community or gathered congregations. This casts doubt upon the validity of the relationship which was observed for urban congregations as a whole. In community congregations a greater number are prepared to travel shorter rather than longer additional distances to church regardless of their frequency of attendance. In gathered congregations, regardless of frequency of attendance, a greater number are prepared to travel more than two miles extra to church than are prepared to travel less than two miles extra. The difference between these two types of congregation must reflect the desire of members of community congregations for convenience as opposed to the members of gathered congregations who are accustomed to travelling greater distances (Table 9.10).

Again the contrast between community and gathered congregations has been pointed though this has been weakened by the inability to draw further conclusions on the basis of low expected cells for gathered congregations. Basically the results of Table 9.12 concur with those for all urban congregations with the exception of the frequency of attendance. It is possible to model the willingness to adjust in both types of urban congregation on the basis of mode of travel,

car ownership, and the distances that are currently being travelled.

(4) Community and Gathered Urban Congregations: The Residential Mobility Hypothesis

Table 9.13 presents the results for those who have moved house at any time and after 1965. For those who have moved after 1965 it is apparent that the number of moves is dependent, in both types of urban congregation, upon social class such that the economically inactive are the least mobile. In the gathered congregations the stronger predictive association (Gamma = - 0.473) is also a function of the high mobility of the upper socio-economic groups. The distance that a migrant, at any time, has been away from church after a move does not affect attendance.

The two remaining relationships which held for all urban congregations can be seen from Table 9.13 to hold only in one of the sub-dividisons of urban congregations. Those who continued to attend the same church after a move have, in community congregations, tended to be about the same distance from church or closer. The same does not apply to gathered congregations which possibly reflects the fact that members of community congregations tend to move shorter distances than members of gathered congregations. This contention is supported by the lack of an observable effect of mobility since 1965 upon travel-distance in community congregations, and the reverse though weak association which is observed for gathered congregations (Table 9.13). Furthermore, the moves made by members of gathered

Table 9.13 - Residential Mobility and Behaviour in the Two Types of Urban Congregation Using Weighted Data

| Relationship | Community (5 congregations, N = 374) | | | | | Gathered (5 congregations, N = 190) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma | $x^2$ | Degrees of Freedom | Significance Level | Cramer's V | Gamma |
| Seg/Numbmove* | 17.8 | 3 | 0.0005 | 0.362 | -0.284 | 10.2 | 3 | 0.02 | 0.343 | -0.473 |
| Tochurch/ Moves65* | | | NS | | | 9.3 | 3 | 0.03 | 0.213 | -0.060 |
| Closerch/ Attendch | | | NS | | | | | NS | | |
| Staych/ Closerch | 24.1 | 2 | 0.0001 | 0.254 | -0.359 | | | NS | | |

* - for relationships based upon moves since 1965 : Community N = 136, Gathered N = 87 - the other relationships are based upon those who have moved at any time.

Table 9.14 - Residential Mobility since 1965 in the Two Types of Urban Congregation Using Weighted Data

| Variable | | Community | | Gathered | |
|---|---|---|---|---|---|
| | | Absolute | Percentage | Absolute | Percentage |
| Moved since 1965 - | Yes | 142 | 34 | 91 | 44 |
| | No | 273 | 66 | 114 | 56 |
| Number of Moves Since 1965 - more than | 1 | 114 | 81 | 54 | 59 |
| | 1 | 27 | 19 | 37 | 41 |
| Type of move since 1965* | | | | | |
| From within 5 miles | | 90 | 90 | 50 | 68 |
| From elsewhere in Scotland | | 8 | 8 | 17 | 23 |
| From a Country outside Scotland | | 2 | 2 | 7 | 9 |
| Total | | 100 | 100 | 74 | 100 |

* - unweighted data.

congregations are quantified in Table 9.14 which shows that 32 per cent of the moves in gathered congregations are over long distances whilst only 10 per cent of the moves by members of community congregations are over long distances.

Further examination of Table 9.14 shows the dramatic contrast between the residential mobility of members of community and gathered congregations. More of the members of gathered congregations have moved since 1965 as 44 per cent have moved compared to 34 per cent in community congregations. Even more dramatic is the contrast in the frequency of moves undertaken by those who have moved since 1965: 41 per cent of the members of gathered congregations have moved more than once since 1965 whereas only 19 per cent of the members of community congregations have moved as frequently.

It appears, then, that the members of gathered congregations are more mobile than the members of community congregations. The contrast may help to explain the difference in the distance travelled to church by the members of the different types of congregation in that the greater experience of residential mobility of members of gathered congregations might be more conducive to travel. Such an explanation is more likely than a proposition that the higher incidence of moves by members of gathered congregations has caused them to move progressively further away from their church yet retain their former allegiance. Because not only do a small number of the members of gathered congregations move within the city (Table 9.14)

but also it is unlikely that the members of gathered congregations formerly lived close to their church since these churches are located in the central part of the city or burgh which has a predominantly commercial/lower status housing structure.

## 9.7 SUMMARY

Provided that the arbitrary nature of the division of the survey congregations into urban and rural groupings is acceptable, the result of subsequent analyses based on this classification is that a model of churchgoing can be constructed with more success in an urban context. Behaviour is not predictable from the same set of variables in rural congregations as in urban. To a large extent this must be explained by the lack of choice in rural areas compared to urban areas. Within the group of urban congregations there is notable variation and two components have been identified. Distinct contrasts have been identified between the characteristics of the members of the two types of urban congregation which may account for their differential behaviour. Having modelled behaviour for the purposes of description and explanation it is apposite to ascertain its significance.

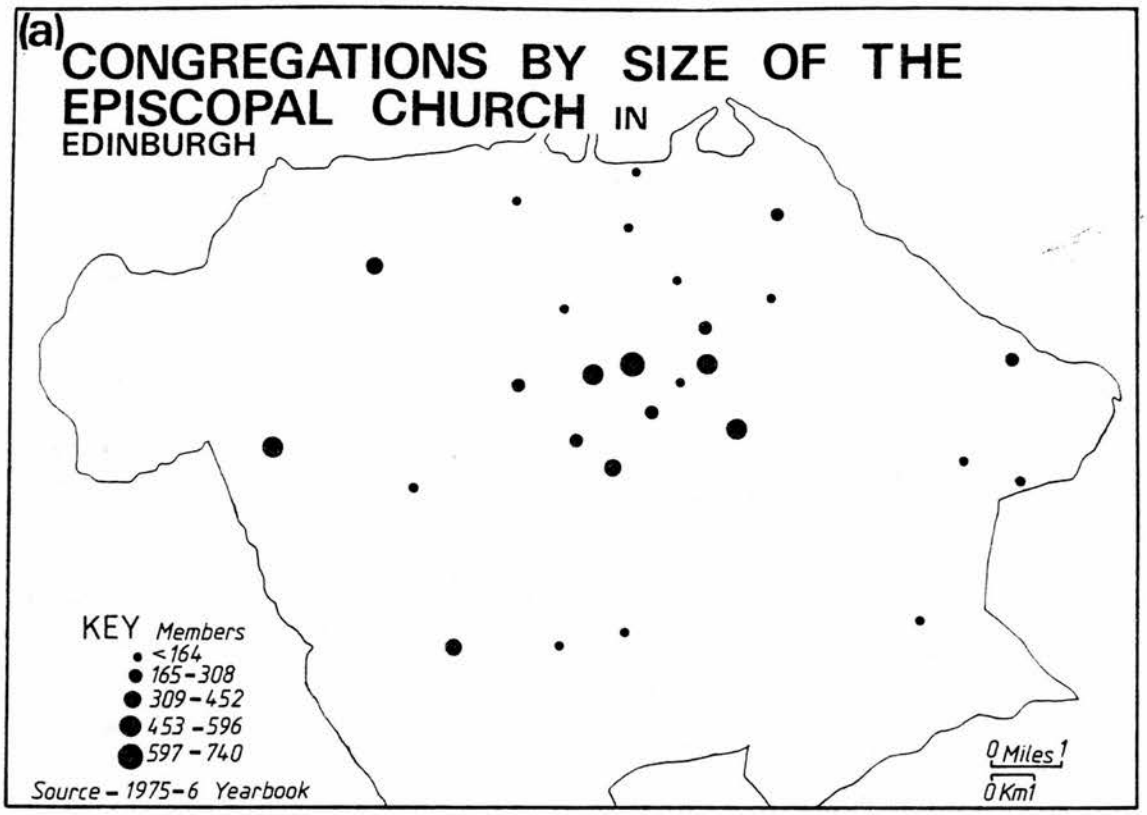
## 9.8 THE IMPLICATIONS OF CHURCH MEMBER BEHAVIOUR

The implications primarily relate to the congregation as a unit of organisation and as a social pattern. It is in the city, however, that member behaviour has the greatest impact because it has the greatest opportunity for producing variation given that there

are many facilities to choose from. In the rural areas, which have been surveyed, the congregation is borne of necessity and tends to serve its own immediate settlement and the dispersed population in its hinterland, and so parish boundaries are respected. Only in the case of the Church of Scotland in Selkirk is there more than one facility of the same denomination to choose from, though in some areas, for example Doune, there is an opportunity for variation in social pattern to develop through the choice of different denominations.

In the city, the operation of choice has dramatic effects upon the geography of membership. The community congregation is a compact and efficient organisational unit with the majority of its members respecting territoriality if a parish system exists. By contrast, the scattered nature of the gathered congregation has several, often adverse effects, because a larger proportion of a denomination's strength is concentrated in city centre churches in an area where indigenous church population is low. A map of the size of congregations of the Catholic Church does not reveal a city centre concentration because Catholic population is recorded by its place of residence and not its place of worship. However, we already know from section 9.2 that some city centre concentration may exist in this denomination. The maps of the congregations of the Episcopal Church and of the Church of Scotland, Figure 9.10 parts (a) and (b) respectively, do reveal city centre congregations of a size and number that the indigenous population would not support. This behaviour has two adverse effects:

(i) Most members of central congregations are drawn from the outlying parts of the city or burgh with the result that the territorial basis of


(a)
CONGREGATIONS BY SIZE OF THE EPISCOPAL CHURCH IN EDINBURGH
KEY Members
< 164
165 - 308
309 - 452
453 - 596
597 - 740
Source - 1975-6 Yearbook
0 Miles 1
0 Km 1

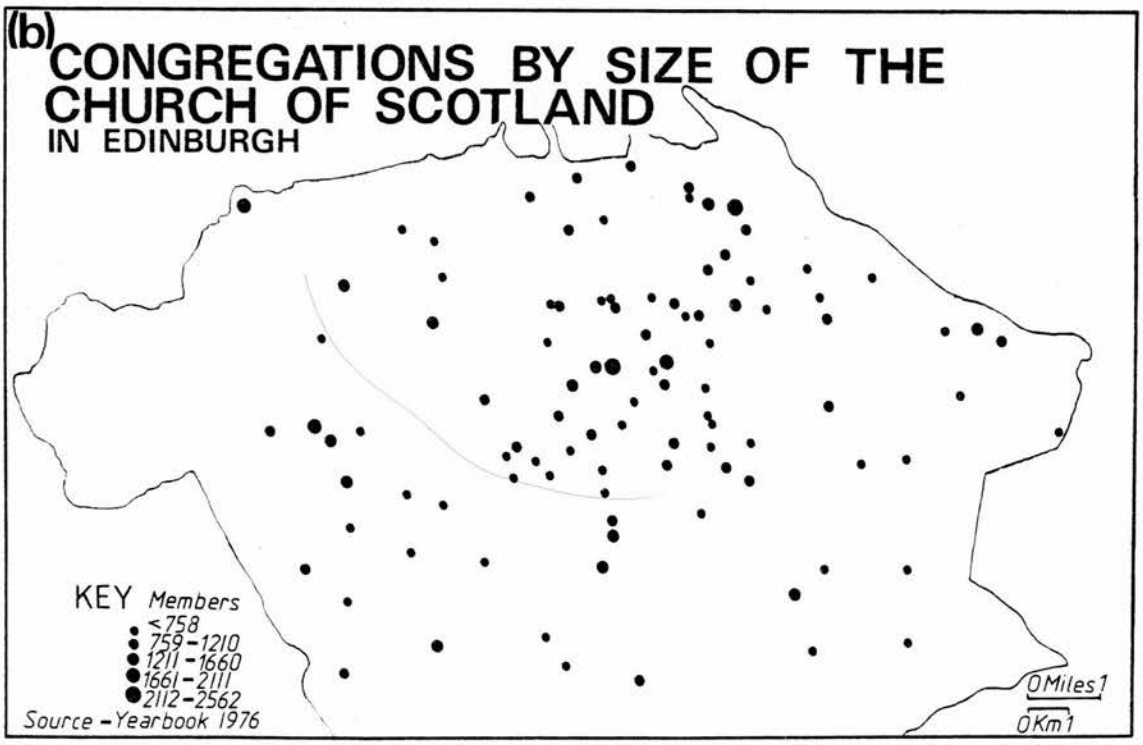

(b)
CONGREGATIONS BY SIZE OF THE CHURCH OF SCOTLAND IN EDINBURGH
KEY Members
< 758
759 - 1210
1211 - 1660
1661 - 2111
2112 - 2562
Source - Yearbook 1976
0 Miles 1
0 Km 1

Figure 9.10

> the congregation is ineffective in at least the Church of Scotland and the Episcopal Church. The clergy no longer serve a geographical area and a community but rather a dispersed congregation. Not only is a gathered congregation wasteful of the clergyman's effort but it may also weaken the spirit of the congregation in that many of its members:
>
> > . . . used to the greater mobility of modern life do not expect to know others in their congregation, and do not expect to know where they live, or any of the circumstances of their lives.
> >
> > (Klein, 1968, p.106).

(ii) The removal of members from peripheral areas leaves existing suburban congregations with a smaller membership and provides a weaker basis for establishing new congregations.

Both rural and urban behaviour patterns have implications for planning in the Church. Traditional forms of adjustment to the stock of facilities were identified for example for the Church of Scotland in Chapter VII as linking in rural areas and unions in urban areas. Yet, it appears from this survey that the urban church member is least willing to travel further as 44 per cent would travel no further and only 22 per cent would travel more than two miles further to church. Is the Church of Scotland's policy of union in urban areas the best policy since it necessarily involves additional travel for the members of one of the congregations entering into a union? The rural church member is more willing to travel further as only 34 per cent would travel no further and 37 per cent would travel more than two miles further to church. Is the Church of Scotland's policy of linking in rural areas the best if people are more prepared to adjust than in urban areas? Perhaps it is only because of the large distances, usually in excess of five miles, between alternative facilities in rural areas that linking is the best policy.

In several denominations new forms of congregation are being proposed. These suggestions are most common in the denominations which have a territorial system, especially the Church of Scotland and the Episcopal Church. One innovation, the 'team ministry' or 'community parish' recognises that boundaries are often ignored in urban areas so that by joining several parishes into a larger unit the members and the efforts of the clergymen would be integrated. This form of congregation also recognises that personal choice, social structure, motivation and many other factors such as residential mobility are beyond the control of the Church but that their adverse effects might be reduced through larger organisational units.

## 9.9 CONCLUSIONS

The survey began with three hypotheses. These have been investigated for a variety of denominations and have been found to also apply, almost entirely, for the Church of Scotland in isolation. The first hypothesis proposed distance decay. In rural areas there is a greater probability of a decline in attendance with distance but it is difficult to establish the nature, if any, of causality. There is no evidence of a distance decay in urban areas examined as a whole or when sub-divided into two components: the frequency of attendance is purposive. Socio-economic variables have been shown to systematically relate to travel-distance in urban but not in rural areas. There are distinct contrasts between the membership of community and gathered congregations in terms of physical mobility, age, the importance given to church proximity, the duration of church membership and the frequency of attendance, all of which relate to travel-distance.

The second hypothesis proposed that the willingness to travel further to church would vary systematically in differing contexts. In both urban and rural areas the factors of car ownership, sex, social group and frequency of attendance relate to the degree of willingness to adjust behaviour. However, members of urban congregations are less flexible than those of rural congregations who have a greater willingness to travel further which is unrelated to present travel-distance. The same relationships apply for the sub-divisions of urban congregations except that the willingness to adjust is less in community congregations than in gathered and in both is independent of the frequency of attendance.

The third hypothesis proposed that residential mobility would affect distance behaviour. The results from an examination of this hypothesis are perhaps the most rewarding. Residential mobility has less affect upon behaviour in rural than in urban congregations. Moreover, the behaviour of members of gathered congregations is affected by residential mobility more than in community congregations. There is a dramatic contrast between mobility in urban areas since the members of gathered congregations have moved more frequently and over longer distances than the members of community congregations. It has also been suggested that the greater experience of residential mobility in gathered congregations is conducive to greater travel-distance in the use of the facilities of the Church.

A reservation which must be borne in mind is that these results have been based upon the response to random samples from

congregations which have been largely self-selected within a purposively delimited transect. The results must therefore be interpreted with caution and can apply only to a variety of conditions found in Scotland rather than the universe of conditions. Given this reservation, it has been possible to relate the behaviour of church members to various socio-economic factors. The next stage of these analyses would be to examine individual motivation and the individual's decision-making process, but it is the author's opinion that these are the province of the sociologist or the psychologist of religion.

# CHAPTER X

# CONCLUSIONS AND IMPLICATIONS

# CHAPTER X

# C O N C L U S I O N S  A N D  I M P L I C A T I O N S

A geography of religion in Scotland has been developed on the basis of demand for, and supply of, the ministrations of institutional religion.

## 10.1 A GEOGRAPHY OF RELIGION : PATTERNS AND PROCESSES

The regionality in the patterns of demand and supply in Scottish denominations has been shown to reflect the timing of their inception within the current political and demographic contexts. A wide range of denominations have evolved under a dominant national Church with their own characteristics, not least their regionality. The diversity of Scottish denominations is a result of two factors, the first being particular events, including schisms and re-unions, and the second being the enormous growth of population in urban areas largely in the nineteenth century which created opportunities for new forms of supply as the national Church was slow to react. Although schisms from the Church of Scotland led to competition and duplication, supply appeared to be deficient in several areas, particularly the urban Lowlands, as demand continued to increase. In at least the last quarter of the nineteenth century we know that this represented

a 'real' increase, as a proportion of adult population, and so the 'unchurched' could rather be a function of alienation from the Church because of a lack of supply than as a result of secularism. It is only in the twentieth century that we can identify a downturn in demand which becomes static and, especially after the 1940s, entered into a dominant trend of decline. The concept of secularisation, defined as decline in institutional religion, may therefore be appropriate only to the twentieth century in which the variety of trends in different denominations means that the concept must be refined.

A detailed examination of the post-World War Two period was conducted in two parts. In the first, within the framework of a time series analysis, three hypotheses were formulated on the basis of the components of membership and existing empirical work. These have been shown to be significantly related to denominational change. The levels of statistical explanation varied and were limited by the range of variables available. The models are not suitable for forecasting but do provide refinement of the concept of secularisation to account for the varied nature of change in membership of different denominations in this period. Not only should we take account of changes in age structure and income but also we have identified the importance of migration from both the components of membership and the housing completions variable. Migration is apparently associated with the decision not to renew membership at destination. An examination of the components of membership of the Church of Scotland showed that losses through migration were as important in

contributing to overall decline as the failure of new members to come forward from that constituency of the population which might be expected to produce church members.

The second part of the examination of the post-War period, a spatial analysis, shows that population change is a reasonable predictor of church membership change. A close scrutiny of residuals for the Church of Scotland showed that it might be possible to more fully account for the observed patterns if consideration is given to migration and its differential effects according to age and social class. Similarly, the patterns and components of change of the Roman Catholic population provided evidence for a leakage of membership through migration over the period, but especially after 1966. Assistance is given to understanding the spatial trends in other denominations by relating change in membership to social class and location. Overall, this investigation shows that the generalised concept of secularisation cannot on its own account for spatial change in membership. The changes in membership comprise not only straightforward redistribution but also include areally specific losses which can be ascribed to the effects of migration and a variety of factors, particularly age and social class, in space.

The changes in demand in the post-War period have implications for supply. Clearly, there are links between demand and supply so it is not possible to use the observed changes in demand as a direct planning tool by isolating 'crisis' areas. However, we can identify from the components of change those groups within the church population upon which the Church should concentrate its efforts.

Similarly, we can assess the changes which have been made to supply on the basis of known changes in demand. A review of institutional reaction shows that the efforts of the Church are constrained as much by policy and decision-making processes as by the changes in demand. The trend in demand largely determines the direction of adjustment, that is whether it is to increase or decrease supply, but these adjustments take a wide variety of forms. Altogether, though, the Church appears to be lacking in its ability to redistribute supply and this will clearly have a significant influence, through the alienation of demand or the creation of widespread catchment areas, upon the future geography of religion in Scotland.

In the latter part of the thesis, attention was focussed upon micro-scale relationships and three hypotheses were examined at the level of the congregation. In general there were distinct contrasts between urban and rural congregations as well as between the two types of urban congregation. Behaviour in rural congregations is not predictable from the same set of factors as in urban areas though this may largely be explained by the lack of choice within rural areas. Specifically, examination of the first hypothesis concerning travel-distance provided no evidence for distance decay in urban congregations as a whole or in their components. There is a greater probability of distance decay in rural congregations but it is difficult to establish the nature of causality. The willingness to travel further, the second hypothesis, did vary systematically with the characteristics of members but urban members tended to be less flexible, as a whole, than rural members while the members of urban community congregations were less flexible than the members of

gathered urban congregations. The third hypothesis, which concerned residential mobility, proved to be the most interesting. Residential mobility had a greater effect upon behaviour in rural than in urban areas. However, the two types of urban congregation differ in that the behaviour of members of gathered congregations seems to be related to a greater experience of mobility and it is suggested that residential mobility may be an important factor which is conducive to greater physical mobility in seeking a church.

## 10.2 IMPLICATIONS FOR POLICY

At a national and regional level we have seen the patterns of loss in Scottish denominations. These suggest, firstly, that greater attention is required to stemming loss through migration and, secondly, that a greater physical redistribution of resources is necessary and should include not only the opening of new facilities but also the transfer of existing facilities which are under-used. Given that we can recognise a relationship between population change and church membership change and are aware of the intervening variables, including age, sex, social class, income, migration distance, source, destination, and housing completions, it is possible to attempt a forecast of future patterns and change. These forecasts could be based on the population predictions given by the Registrar-General and the knowledge of local circumstances held by the clergy.

At the local level in rural areas we have observed distance decay yet a greater willingness than in urban areas to travel further to church if required. Although the latter relationship might

support the amalgamation of facilities, the observed tendency for the frequency of attendance to decline with greater distance and the sizeable distances between neighbouring facilities mean that linking is necessary and that the Church will have to preserve rural services. In urban areas, the behaviour of members of community congregations can give the Church little cause for concern. However, the behaviour of members of gathered congregations has penalties of inefficiency and fragmentation. New forms of ministry which combine several neighbouring congregations and their clergymen therefore seem appropriate and would complement community congregations.

## 10.3 IMPLICATIONS FOR THEORY

There are several points that this thesis has raised which concern the theory and methodology of the geographical study of religion. These are as follows:

(1) Support is given to the usefulness of a temporal approach to the study of the geography of religion. An examination of the past can help to explain fundamental aspects of contemporary religious distributions and structure. In addition this approach enables the selection from a context of periods that are of particular interest for further study.

(2) The macro- and micro- study levels are complementary but produce information which differs in quality. In this thesis largely separate questions have been pursued at the two levels but more integration would be possible if hypotheses developed at the macro-level, particularly those concerning migration, were to be investigated at a local level. However, we have already seen that as the scale of aggregation decreases the amount of variation increases and so it would not be possible to assume deterministically that findings at the macro-level would apply at the micro-level or vice versa.

(3) The process of associating religion with other social distributions can be helped greatly by examining the components of membership and can be made more accurate by being aware, where possible, of the relationship of the demographic characteristics of a given religious population to those of the total population.

(4) The concept of secularisation, derived from sociological theory, can be improved upon the basis of geographical analysis. If the differing characteristics of denominations and the differential influence of age structure, mobility and socio-economic variables is noted, the concept of secularisation need not be assumed to have a 'blanket' effect and can account for the variety in temporal change. Similarly, if the same factors, but especially migration, are considered then the operation of secularisation can be given a spatial dimension and so account for the spatial concentration of losses to the Church.

(5) A model of the geography of religion has been developed in terms of demand and supply. This is a useful conceptual tool provided that each component is viewed in combination as well as in isolation. It is important that the interaction between the components is not assumed to be deterministic.

(6) The definition of the geography of religion has been generally ignored by researchers in this field of study. It has been suggested in this thesis that the geography of religion can be approached from two points of view. The first is to account for religious distributions by relating religion to other aspects of social geography. The second is to identify the effect that religion has upon other variables.

## 10.4 IMPLICATIONS FOR RESEARCH

There are two opportunities for comparison between religion and additional variables. The first involves time series in which there is a need to employ qualitiative variables to achieve higher levels of explanation. The problem is that such variables are readily available only at very low levels of aggregation using a

survey which would preclude dynamic study. However, some surrogate measures might be found for social mobility, the impact of war, the Billy Graham Crusades and political developments which could be employed at an aggregate scale. A second requirement is for the use of additional variables in spatial analyses, though unfortunately the lack of data would mean that these would have to be examined within aggregate units, for example the county if use were to be made of Health Board migration data.

A need exists for further study of the migration hypothesis, especially as there is little chance of obtaining less aggregate migration data from official sources. This research would have to be carried out at a micro-level and would need to examine the characteristics and behaviour of both church members and former church members. Survey areas could be identified on the basis of population change and migration as discussed in this thesis in order that efforts would be focussed on areas of receipt.

In addition, religion could be viewed as an 'agent' with respect to other phenomena. We have examined religion as a dependent variable and identified patterns and some of the processes. The initiative in understanding the effect of religion upon other phenomena may lie in disciplines outside geography. However, once there is an awareness of the role of religion as an agent it may be an important variable in explaining other social distributions and so a more complete statement of the geography of religion may be made.

# APPENDICES

# A P P E N D I X  A

## A LIST OF OFFICIALS WHO GAVE ASSISTANCE TO THIS STUDY

Access to Congregational Lists for a Pilot Survey

Rev. D. Ogston, Balerno Church of Scotland

Rev. D. Shaw, Kilmallie Free Church

A. Gardiner (Preacher) Church of Christ, Calder Place, Edinburgh

Rev. D. Rae, St. Andrews Church of Scotland, Leith

Permission to Conduct a Church-Door Survey of Roman Catholic Parishes

Very Rev. E. Canon Hyland, St. Patricks

Very Rev. F. Roberts (Superior), The Sacred Heart of Jesus

Very Rev. J. McCafferty (Guardian), St. Francis

Access to Congregational Lists for Mapping and Questionnaire Survey

Rev. J. Carmichael, Strontian Church of Scotland

Rev. G.H. Gilmour, St. Johns Episcopal Church, Selkirk

Rev. W.W. Clinkenbeard, Carrick Knowe Parish Church, Edinburgh

Rev. E.A. Maclean, Highland Tolbooth St. Johns, Edinburgh

Rev. J.S. Paterson, Falkirk Old Parish Church

Mr. McDiarmid (Session Clerk), Kilchoan Free Church

Mr. C. Ramsay (Session Clerk), United Free Church, Falkirk

Pastor A. Hodges, Seventh Day Adventist Church, Edinburgh

Rev. A.M. Hill, St. Marks Unitarian Church, Edinburgh

Rev. N.F.W. McPherson, Augustine Bristo Congregational Church, Edinburgh

Rev. J.M. Kellet, South Leith Parish Church, Edinburgh

Rev. R. Buchan, United Free Church, Corstorphine, Edinburgh

Rev. D. Lamont, St. Columba Free Church of Scotland, Edinburgh

Rev. D.J.B. Anderson, Bainsford Parish Church, Falkirk

Rev. A. Rider, St. Marys, Glencoe

Rev. H. MacLean, Duror Church of Scotland

Rev. W.M.M. Campbell, Kinloch Rannoch Church of Scotland

Rev. A.E. Strachan, Kilmadock Parish Church, Doune

Rev. W.F. Laing, St. Marys West, Selkirk

Rev. R. McLure, Leith Methodist Church

Rev. R.F. Holloway, Old St. Pauls Episcopal Church, Edinburgh

The Provision of Denominational Statistics

Right Rev. Mgr. P.J. Grady, Archdiocesan Office, Edinburgh

Right Rev. Mgr. D.M. McRoberts, Catholic Archivist

Rev. T. Balfour, Church and Ministry Department, Church of Scotland

Rev. B.J. Meeney, Assistant Secretary, The Representative Church Council of the Episcopal Church in Scotland

Mr. I.G. McHaffie, Christadelphian Ecclesias

Mr. D.W. Cartwright, Director of Publications, Elim Pentecostal Church

Mr. D.A. Cuthbert, Mission President, Church of Jesus Christ of the Latter-Day Saints

Rev. D.W. Roy, General Secretary, United Free Church

Rev. H. Escott, Archivist, Congregational Union of Scotland

Rev. R. Waters, Secretary, Congregational Union of Scotland

Mr. J.J. Park, the Church of God in Glasgow

Rev. J.M. Rankin, General Secretary, Apsotolic Church

Mr. C.R. Crawford, President, The Church of the New Jerusalem

Rev. W.R. Scott, Baptist Union of Scotland

Rev. R.J. Bade, The Churches of Christ

Mr. I.D. Gill, General Treasurer, The Free Church of Scotland

Rev. R.R. Sinclair, Free Presbyterian Church of Scotland

Mr. W. Gooch, Branch Manager, Jehovah's Witnesses

Mr. P.S. Brewster, Elim Pentecostal Church

Rev. H.H. Tennant, Methodist Church

Rev. A. Sinclair Horne, Clerk of Synod, Reformed Presbyterian Church of Scotland

Rev. D.J. Tarrant, District Superintendent, Church of the Nazarene

Mr. K.A. Elias, President, Seventh Day Adventist Church

Mr. D.M. Nelson, Clerk, Society of Friends

Other Assistance

Rev. H.N. Boyle, Editor, Scottish Catholic Directory

Right Rev. D.K. Wimbush, The Bishop of Argyll and the Isles, Episcopal Church of Scotland

Assistance with Queries Concerning Unions and Changes in the Church of Scotland between 1951 and 1971: Presbytery Clerks

Rev. A.S. Mitchell, Dumbarton

Rev. J.A. Bremner, Dundee

Rev. C.L. Johnston, Ayr

Rev. G.V. Hendrie, Kirkcaldy

Rev. A.B. Forrest, West Lothian and Bathgate

Rev. A.B. Gordon, Aberdeen

Rev. J.W. Patterson, St. Andrews

Rev. R.M. Farquhar, Wigtown and Stranraer

Rev. G.K. Higgins, Lorn and Mull

Rev. J.R.H. Cormack, Inveraray

Rev. G.V.R. Grant, Chanonry, Dingwall and Lochcarron

Rev. J. Callan Wilson, Skye

Rev. W. Nicholson, Kincardine and Deeside

Rev. G.J. Dingwall, Sutherland

Rev. I.M. Roy, Ardrossan

Rev. G.F. Kydd, Annandale

Rev. C.E. Eddy, Duns

Rev. N.A.M. MacKenzie, Lothian

Rev. R. MacDonald, Gordon

Rev. J.D. Fraser, Buchan

Rev. W.B. Aitken, Dumfries and Kirkcudbright

Rev. A.G. McGillivray, Edinburgh

Rev. D.C. McPhee, Hamilton

Rev. A.E. Lambie, Shetland

Rev. W.B. MacLaren, Falkirk

Rev. A.G. MacAlpine, Tain

Rev. T. Kinloch, Stirling and Dunblane

Rev. T.F. Gibb, Perth

Very Rev. A. Herron, Glasgow

Rev. C.A. Duncan, Melrose and Peebles

Rev. J.H. Whyte, Greenock

Rev. W.G. Burns, Angus

Rev. E.T. Hewitt, Irvine and Kilmarnock

Rev. W. Downie, Dunoon

Rev. M.G. Mappin, Caithness

# APPENDIX B

THE UNIVERSITY OF EDINBURGH
School of the Built Environment

Telephone 031-667-1011 Ext 4358

Department of Geography
High School Yards
Edinburgh EH1 1NR

1976

SAMPLE CENSUS OF MEMBERS/ADHERENTS OF SCOTTISH DENOMINATIONS

Dear Sir/Madam,

May I ask for your help in connection with research at the University of Edinburgh?

The purpose of this research is to establish the geographical factors involved in church membership patterns, and to draw conclusions which will be of assistance to all denominational leaders in Scotland. Owing to financial constraints this questionnaire is only being issued to a limited number of people selected by an unbiased method from several congregations. Its success therefore depends on your co-operation.

I would like to add that any information given will be used for research purposes only and that confidentiality will be maintained.

I would be extremely grateful if you could complete the enclosed questionnaire as soon as possible and return it in the envelope supplied.

Thank you in advance for your assistance,

Yours sincerely,

C.A. Piggott

PARISH ☐☐

TO BE COMPLETED, PLEASE, BY THE PERSON TO WHOM ADDRESSED

If you do not attend church at all, please tick this box and return the questionnaire ☐

PLEASE RING THE APPROPRIATE NUMBERS BELOW

A. Roughly how far do you travel TO church?

1. Less than ¼ mile
2. Between ¼ and ½ mile
3. Between ½ and 1 mile
4. Between 1 and 2 miles
5. Between 2 and 5 miles
6. Between 5 and 10 miles
7. Over 10 miles

B. How do you mostly travel TO church?

1. Private car 2. Motorcycle or bicycle
3. Bus 4. Train 5. By foot
6. Boat or ferry

C. Approximately how often do you manage to attend church for worship?

1. Once a week or more
2. Once or twice a month
3. Two, three or four times a year
4. About once a year
5. Less than once a year

D. Is there any reason which prevents you from attending church more often?

If any, please specify _____

E. Roughly how far do you travel TO work?

1. Less than ¼ mile
2. Between ¼ and ½ mile
3. Between ½ and 1 mile
4. Between 1 and 2 miles
5. Between 2 and 5 miles
6. Between 5 and 10 miles
7. Over 10 miles
8. Distance varies
9. Not applicable

F. Do you possess, or have access to, a car?

1. Yes 2. No 3. Sometimes

G. How much further would you be prepared to travel TO church from your present house?

1. Less than ¼ mile
2. Between ¼ and ½ mile
3. Between ½ and 1 mile
4. Between 1 and 2 miles
5. Between 2 and 5 miles
6. Between 5 and 10 miles
7. Over 10 miles
8. No further

---

H. If you said that you would be prepared to travel further to church, would you have to change your form of transport?

1. Yes 2. No 3. Don't know

---

I. Are there any other churches of your denomination closer in distance to your house than your present church?

1. Yes 2. No 3. Don't know

---

J. How many churches of any denomination, including your present one have you been a member/adherent of in the last 10 years? 1. 2. 3. 4. 5.

---

K. For how long have you been a church member/adherent?

1. Less than 1 year
2. Between 1 and 5 years
3. Between 5 and 10 years
4. More than 10 years

---

L. Have you ever belonged to churches of another denomination?

1. Yes 2. No

---

M. Do you go to the church of the 'church parish' in which you live?

1. Yes 2. No 3. Does not apply 4. Don't know

---

N. Which of the occupants in your household also travel to the same church, other than yourself?

1. Nobody 2. Spouse 3. Parent(s) 4. Child(ren) 5. Brother(s) and/or Sister(s) 6. Other relative(s) 7. Other(s)
8. Any combination of these, please specify _____

---

O. To which of the following age groups do you belong?

1. Less than 15 2. Between 15 and 20
3. Between 20 and 24 4. Between 25 and 34
5. Between 35 and 44 6. Between 45 and 54
7. Between 55 and 64 8. Between 65 and 74
9. Over 75

---

PLEASE TURN OVER

P. Please give a brief description of your job

---

Q. How would you describe the last house move that you have made?

1. Within a city/town
2. From one country area/village to another
3. From a country area/village to a town/city
4. From a town/city to a country area/village
5. From one town/city to another

R. After your last move have you mainly worshipped in the same church building as you did before?

1. Yes 2. No

S. After your last move were you closer in distance to church than before?

1. Yes 2. No 3. Same

T. After your last move did you attend church

1. More often 2. Less often 3. The same number of times

U. Have you moved house since 1965?

1. Yes 2. No

If you have, please state how often

1. Once 2. Twice 3. Three times 4. Four times
5. More than four times

If you have, from where did you move?_____

---

V. In choosing your present house could you please number the following IN ORDER OF IMPORTANCE. Put 1 beside the most important, 2 beside the next, and so on. Miss out any not considered.

Proximity of schools ---------- ☐
Suitability of house ---------- ☐
Proximity of church ---------- ☐
Proximity of friends/relatives ---------- ☐
Proximity of entertainment ---------- ☐
Proximity of shopping ---------- ☐
Proximity to place of work ---------- ☐
Proximity of banks/legal/medical services ---------- ☐
Proximity of transport facilities ---------- ☐
Other(s) please specify ---------- ☐

Please check that you have given an answer to all of the questions which apply to you.

THANK YOU

THE UNIVERSITY OF EDINBURGH
School of the Built Environment

Telephone 031-667-1011 Ext 4358

Department of Geography
High School Yards
Edinburgh EH1 1NR

1976

Dear Sir/Madam,

SAMPLE CENSUS OF MEMBERS/ADHERENTS OF SCOTTISH DENOMINATIONS

To date I am missing a number of questionnaire replies. Without these the study itself will suffer. Please, if you have not already done so, will you complete your questionnaire and return it in the envelope provided.

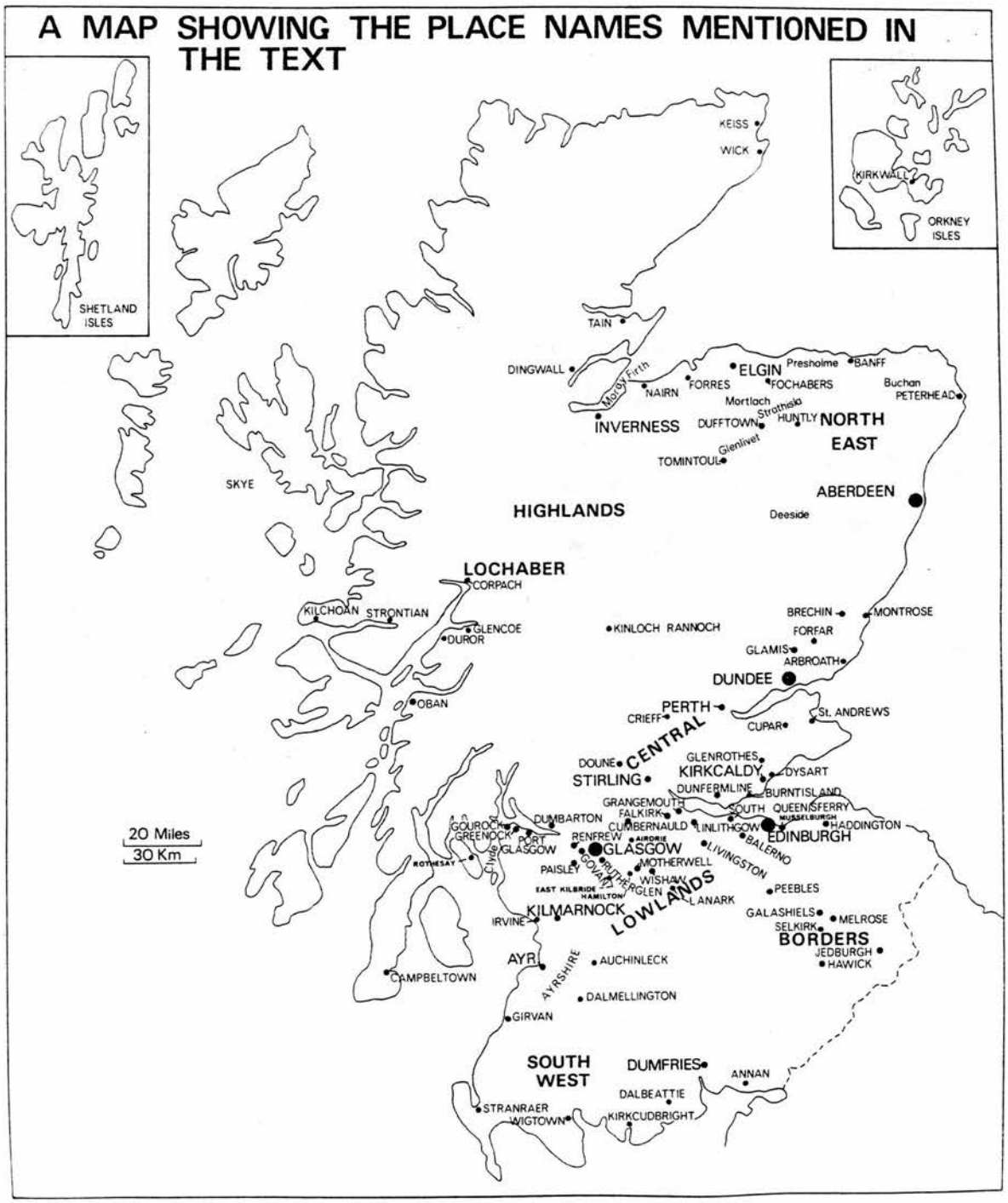
If you complete your questionnaire after receiving this letter please mark the top of the questionnaire with an'x'.

Yours sincerely,

C.A. Piggott.

C.A. Piggott

# APPENDIX C


A MAP SHOWING THE PLACE NAMES MENTIONED IN THE TEXT
SHETLAND ISLES
ORKNEY ISLES
KIRKWALL
KEISS
WICK
TAIN
DINGWALL
Moray Firth
NAIRN
FORRES
ELGIN
Presholme
BANFF
FOCHABERS
Buchan
PETERHEAD
Mortlach
Strathisla
HUNTLY
NORTH EAST
INVERNESS
DUFFTOWN
Glenlivet
TOMINTOUL
SKYE
HIGHLANDS
ABERDEEN
Deeside
LOCHABER
CORPACH
KILCHOAN
STRONTIAN
GLENCOE
DUROR
KINLOCH RANNOCH
BRECHIN
MONTROSE
FORFAR
GLAMIS
ARBROATH
DUNDEE
OBAN
PERTH
CRIEFF
CUPAR
St. ANDREWS
CENTRAL
DOUNE
STIRLING
GLENROTHES
KIRKCALDY
DYSART
DUNFERMLINE
BURNTISLAND
GRANGEMOUTH
FALKIRK
SOUTH QUEENSFERRY
CUMBERNAULD
LINLITHGOW
HADDINGTON
EDINBURGH
DUMBARTON
GOUROCK
GREENOCK
PORT GLASGOW
RENFREW
GLASGOW
AIRDRIE
BALERNO
LIVINGSTON
ROTHESAY
Clyde
PAISLEY
GOVAN
MOTHERWELL
WISHAW
EAST KILBRIDE
HAMILTON
RUTHERGLEN
LANARK
PEEBLES
LOWLANDS
KILMARNOCK
IRVINE
GALASHIELS
MELROSE
SELKIRK
BORDERS
JEDBURGH
HAWICK
AYR
AUCHINLECK
AYRSHIRE
CAMPBELTOWN
DALMELLINGTON
GIRVAN
SOUTH WEST
DUMFRIES
ANNAN
DALBEATTIE
STRANRAER
WIGTOWN
KIRKCUDBRIGHT
20 Miles
30 Km

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